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ABSTRACT

This collection provides an overview of literature entered into the ERIC database in 1990 on computer applications in elementary and secondary education, adult education, and special education. The first of four sections contains a list of overview documents on computer assisted instruction. Focusing on special applications, the second section lists documents on artificial intelligence, cognitive processes and thinking skills, computer literacy, computer networks (including distance education and telecommunications), computer equity, counseling and guidance, interactive video, keyboarding, the Logo programming language, management/administration, research, software, and tests and testing. References to documents for various subject area applications are listed in the third section under the headings of Business, English as a Second Language and Foreign Languages, Fine Arts, Language Arts, Mathematics, Physical Education, Programming, Reading, Science, Social Studies, Vocational Education, and Writing. The fourth section contains references to documents on special populations grouped into the following categories: adult education, disabled learners and learning disabilities, disadvantaged, gifted, and preschool education. Each entry includes the title and author of the document, information on price and availability, the publication type, major ERIC descriptors, and an abstract. An alphabetical index of authors and information on ordering ERIC documents are included. (DB)

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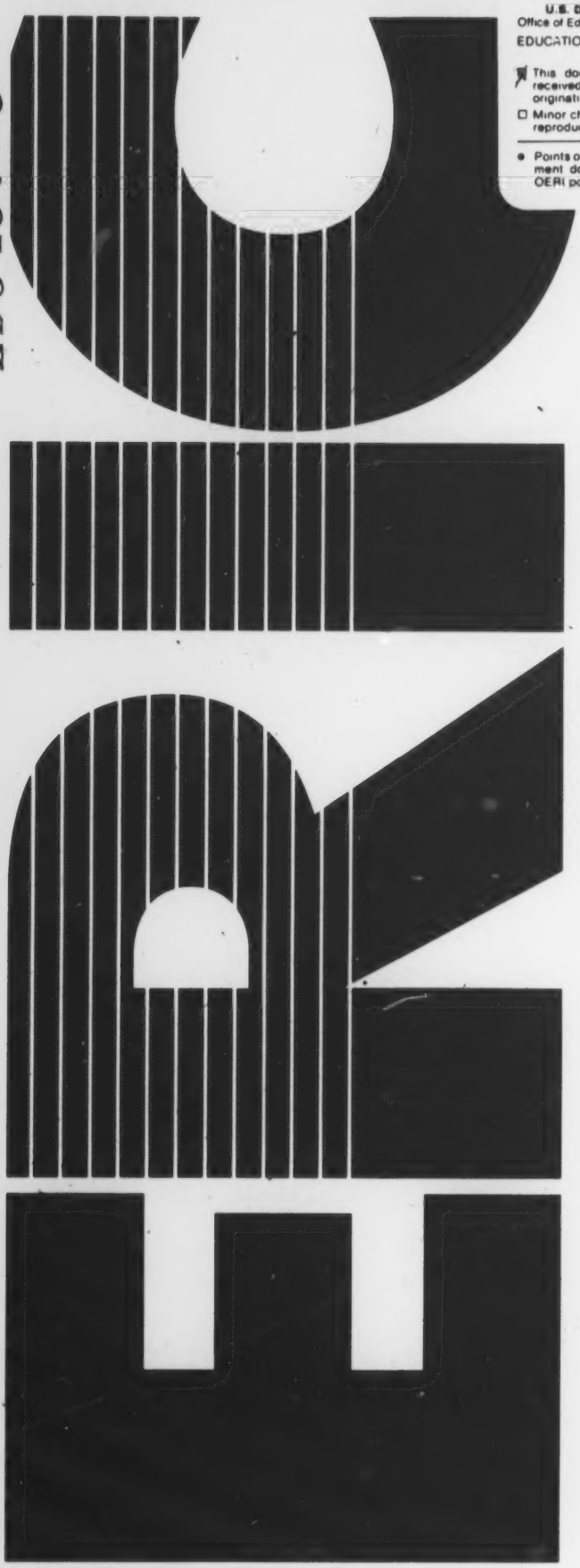

COMPUTER APPLICATIONS IN EDUCATION

The Best of ERIC, 1990

by Pamela McLaughlin

ERIC Clearinghouse on Information Resources
Syracuse University

IR-82

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COMPUTER APPLICATIONS IN EDUCATION

The Best of ERIC 1990

(formerly COMPUTER-BASED EDUCATION)

by
Pamela McLaughlin

February 1992

ERIC Clearinghouse on Information Resources
Syracuse University
Syracuse, New York

Pamela McLaughlin is currently the head of online search services at the Syracuse University Library. A 1980 graduate of the School of Information Studies at Syracuse University with the M.L.S. degree, she also holds an undergraduate degree in music. Her prior experience in the library/information science field includes positions as a reference/instruction librarian at the State University of New York College at Oswego, and as the coordinator of user services at the ERIC Clearinghouse on Information Resources at Syracuse University. This is the sixth volume in this series that Ms. McLaughlin has edited.

Prior publications from ERIC/IR in this series are:

Computer-Based Education: The Best of ERIC 1989, by Pamela McLaughlin. 1990.

Computer-Based Education: The Best of ERIC 1988, by Pamela McLaughlin (ED 318 471). 1989.

Computer-Based Education: The Best of ERIC 1987, by Pamela McLaughlin (ED 318 474). 1988.

Computer-Based Education: The Best of ERIC 1986, by Pamela McLaughlin (ED 295 675). 1987.

Computer-Based Education: The Best of ERIC 1983-1985, by Pamela McLaughlin (ED 284 542). 1986.

Computer-Based Education: The Best of ERIC June 1976-1982. Revised and Updated, by Keith A. Hall (ED 232 615). 1982.

Computer-Based Education: The Best of ERIC June 1976-August 1980, by Keith A. Hall (ED 195 288). 1980. (Incorporated in the 1982 edition.)

Computer-Assisted Instruction: The Best of ERIC 1973-May 1976, by Marian Beard (ED 125 608). 1976.

The Best of ERIC: Recent Trends in Computer-Assisted Instruction, by Richard E. Clark (ED 076 025). 1973.

This is the fifth annual update in this series.

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FOREWORD

This publication marks the tenth edition of the **Computer Based Education: The Best of ERIC** series that began in 1973. Together, these ten compilations document the major developments in the implementation and impact of computer technology in education. They also attest to the tremendous growth in the literature about computers in education.

As noted in previous editions, the publication is a dynamic one, with changing categories and emphases. Even the title changes. The first title (Clark's 1973 **The Best of ERIC: Recent Trends in Computer-Assisted Instruction**) emphasized the phrase "computer-assisted instruction." More recent editions used the term "computer-based education." For this current edition, we selected "computer applications in eduation" as the key phrase in the title, because it more accurately describes the content of the documents listed within.

Also as before, the selection of entries becomes more difficult due to the increasing number of entries in the ERIC database related to computer hardware and software, computer systems, and related technologies. At the same time, choosing from a rich baseline improves the overall quality of the entries selected. We hope this increasing selectivity continues to add value to the product.

Consistency of selection is an important quality control factor, and we are again pleased to have Pamela McLaughlin as the editor. This is her fifth volume in the series. In the ***Introduction*** to this edition, Ms. McLaughin carefully describes the selection process, search strategy, categorization and organization of the publication.

Computing technology continues to dominate the literature of educational technology. The ERIC Clearinghouse on Information Resources now indexes over 15 journals devoted exclusively to computers in education. There are more than a dozen more that contain computer related articles among a broader offering of items that cover the field of educational technology. Our annual analysis of trends and issues again shows the dominance of the technology within the scope of the larger field and on education in general. In addition, articles discussing the use of computers in various educational contexts appear in almost every general and specialized education periodical. Most of these articles are indexed in **Current Index to Journals in Education** (CIJE), the journal portion of the ERIC database.

ERIC also indexes increasing numbers of reports, guides, conference papers, and other documents concerned with computer technology. Since journal articles are generally more widely covered than documents, **Computer Applications in Education: The Best of ERIC 1990** focuses exclusively on the best documents indexed in **Resources in Education** (RIE), the document portion of the database. Readers will find most of these items available in full-text in ERIC microfiche collections.

The ERIC Clearinghouse on Information Resources attempts to provide a range of useful products related to trends and developments in educational technology. This year we will publish the monograph, **Trends and Issues in Educational Technology 1991**, a monograph aimed at identifying and describing key developments as reflected in the literature. We are also serving as editors for the key reference work in the educational technology field, the **Educational Media and Technology Yearbook** published by Libraries Unlimited. Readers will find useful articles on key topics as well as listings of agencies, organizations, and educational programs in educational technology.

As always, we welcome your reactions to this year's edition and the entire series. Please send us comments about how we can make it even more relevant to your needs.

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Introduction

This publication is the fifth annual update in the **Computer-Based Education: The Best of ERIC** series. Other volumes in this series are listed on the back of the title page.

This series has been designed for use by educators who need to make decisions about the use of new technologies in schools, or who want to keep abreast of new developments in this rapidly-changing field. This update provides an overview of the literature entered into the ERIC database in 1990 on the use of microcomputers and related technologies in elementary and secondary education, adult education, and special education. It should be noted that 1990 is the date when these materials were entered into the database, and not the actual date of publication.

Higher Education Excluded. Applications for computer-based education in institutions of higher learning differ in many ways from applications in elementary and secondary schools. These differences include the availability of hardware and software, delivery mechanisms, the intensity of computer use in certain disciplines at this level, and other issues related to the growth and development of computing and management of computing resources in higher education. This area is sufficiently distinct to warrant separate treatment.

Scope of the Bibliography

Substantive ERIC documents from the 1990 volumes of **Resources in Education** (RIE) have been selected for inclusion in this publication; journal articles have not been included due to their availability in other bibliographic sources. For each topic covered, selected ERIC document citations are listed. Types of materials targeted for selection include:

- Handbooks;
- Literature reviews;
- Teaching guides;
- Administrator guides
- Bibliographies
- Research reports;
- Program descriptions;
- Conference papers;
- Evaluative reports.

Search Strategy

As with previous editions, a general search of the ERIC database was conducted for the following major descriptors: any term containing the word COMPUTER (truncated), MICROCOMPUTERS, COMPUTER SOFTWARE, COURSEWARE, ELECTRONIC MAIL, AUTHORING AIDS, HYPERMEDIA, INTERACTIVE VIDEO, DESKTOP PUBLISHING, INPUT OUTPUT DEVICES, KEYBOARDING, CAREER INFORMATION SYSTEMS, SPREADSHEETS, WORD PROCESSING, DATABASE MANAGEMENT SYSTEMS, OPTICAL DISKS, ELECTRONIC PUBLISHING, EXPERT SYSTEMS, ARTIFICIAL INTELLIGENCE, GATEWAY SYSTEMS, or TELECOMMUNICATIONS. The results of this search were then limited to ERIC documents with accession numbers for 1990, eliminating HIGHER EDUCATION. This resulted in a total of 507 items. Of these, 253 were selected for inclusion in the bibliography.

New Categories

This update includes several new or modified categories. Items selected for inclusion are used as the primary guide for the creation of categories, and as such, serve as a bibliometric analysis of the current state of the literature of computer-based education. New categories in the **Special Applications** section include *Cognitive Processes* and *Thinking Skills*, *Computer Networks* (formerly *Telecommunications* and *Distance Education*), and *Keyboarding*, which appears again after a lapse. Categories not appearing in this edition are *Computer Simulation*, *Copyright*, and *Trends*. The category *Physical Education* is the only new listing in the **Subject Applications** section. In the **Special Populations** section, a new category appears for *Gifted* applications.

Organization of the Bibliography

This bibliography is divided into four major sections, **Computer Assisted Instruction—Overview Documents, Special Applications** (i.e., those without a specific subject orientation), **Subject Applications, and Special Populations**.

The first section contains 27 documents that provide a general discussion of computer assisted instruction, including literature reviews, research and evaluative reports, teaching guides, program descriptions, handbooks and manuals, and a collection of essays.

The second section, **Special Applications**, contains 13 categories, including: three documents on *Artificial Intelligence*, down from 19 last year; four papers in the new section, *Cognitive Processes and Thinking Skills*; three items under *Computer Literacy*, including two teaching guides and an ERIC Digest; 14 documents in the renamed section, *Computer Networks*, encompassing issues related to distance education and telecommunications; four papers in the *Computer Equity* section, dealing with gender, ethnic, and social issues; three items on *Counseling and Guidance*; 11 documents on *Interactive Video*, including conference papers, research reports, an ERIC Digest, literature reviews and project descriptions; two papers on keyboarding; three documents on Logo; seven items relating to *Management/ Administration*; nine *Research Reports*, 17 items on *Software Development and Evaluation*, including collections of software reviews, teaching guides, position papers, and an ERIC Digest; and, nine items on *Computer-Assisted Testing*.

The third section covers computer applications in a variety of subject areas, including: five items on *Business Education*; 16 reports on *English as a Second Language and Foreign Language Instruction*; seven documents on *Language Arts*; 13 reports on *Mathematics*, down from 28 in the previous edition; one paper on *Physical Education*, specifically, *Dance*; one conference paper on programming; five reports on *Reading Instruction*; 11 documents on a variety of applications in *Science Instruction*, down from 30 in the previous edition; four items on *Social Studies*, including geography and American history; 11 documents on *Vocational Education*; and 12 papers on *Writing Instruction*.

The final section addresses computer usage with **Special Populations**, and includes 12 documents on uses in *Adult Education*; 31 papers on uses with *Disabled Learners*, including all types of disabilities; three items dealing with *Disadvantaged* populations; one conference paper on uses with *Gifted* students; and, one teaching guide for use with *Preschool* students.

Editor's Note: The spellings *programing* and *programming* are used throughout this work, as are *programed* and *programmed*. The ERIC decriptors use the *single m*, which is the correct spelling according to spelling rules. However, most authors use the *double m*, which is the accepted current usage. It seems to this Clearinghouse that, while we are required to preserve the *single m* spelling in the descriptor field, it would be a disservice not to use the *double m* elsewhere for the convenience of free text or end-user searchers who may be unfamiliar with the **Thesaurus of ERIC Descriptors**. We make an effort to follow this practice consistently. Since the abstracts in this compilation are reproduced as they appear in **Resources in Education** (RIE) and as they are entered in the online database, both spellings are used.

Computer Assisted Instruction

Overview Documents

ED317198
Partnerships: Developing Teamwork at the Computer.
Anderson, Mary A.
1988, 138p.
EDRS Price: MF01/PC06 plus postage.
Document Type: Teaching Guide (052); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Cooperative Learning; *Problem Solving; *Teamwork

This manual on developing teamwork at the computer provides cooperative learning activities for grades K-10 which promote the development of academic, computer, and social skills. The manual is divided into three sections: (1)"Getting To Know Each Other"; (2) "Group Cohesion"; and (3) "Group Problem Solving." The first group includes 10 activities designed to set the stage for cooperative work in a team as students become acquainted with each other and share information about themselves. The second group provides 10 activities designed to help students establish a team identity. They are also intended to develop communication, trust, and a feeling of belonging which will enable a group to work together later with subject area content. The eight activities in the third section are designed to foster students' thinking together and developing such skills as listening to others and asking questions. Students focus on a particular problem and participate in a successful solution. Each activity includes a specification of grade level, time requirement, material requirements, and student prerequisites; an introduction to the lesson; procedures for group tasks, closure, and extension; teacher notes; and student worksheets. The appendixes include a directory of software requirements for each activity, including the publisher's address; and an order form for this book.

ED320538
Role of Intermediary Organizations in Computer Education and Technological Literacy. Revised.
Barton, Paul E.
National Institute for Work and Learning, Washington, DC.
1983, 29p.
Sponsoring Agency: Department of Education, Washington, DC.
EDRS Price: MF01/PC02 plus postage.
Document Type: Review Literature (070); Position Paper (120)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Intermediate Administrative Units; *Microcomputers; *Professional Services; *Technical Assistance

This paper provides examples of intermediary organizations that assist school systems to integrate computer technology into their programs through the provision of financial and/or technical assistance. The organizations are classified into five major categories: (1) free-standing organizations; (2) the collaborative council (representing collaborative efforts among industry, education, and labor representatives); (3) colleges and universities; (4) professional associations; and (5) community-based organizations. The services of each of the intermediary organizations listed are described. In addition, the role of the business enterprise, though not strictly an "intermediary" as the term is used in the paper, is noted. (29 references)

ED318392
The Experience Factor in Elementary Computing.
Beaver, John F.
[1987], 11p. For a related report, see ED 318 393.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Program Development; *Program Length

This study was undertaken in the fall of 1987 to investigate the differences between schools with long-established and newer instructional computing programs, and to test the assumption that experience indicates superior program quality. Seventy-three elementary schools believed to have developed outstanding instructional computing programs were divided into two groups according to the longevity of their instructional computing programs and surveyed to determine: (1) the ratio of

students to computers; (2) the ratio of computers to teachers; (3) total computer-related expenditures; (4) total computer budgets for a 2-year period; (5) the presence or absence of computer expenses as a permanent budget line item; (6) the number of years for which instructional computing programs were planned; (7) the extent of teaching staff involvement; and (8) the allocation of computer time to programming, computer-assisted learning, and other applications. The established program group surpassed the newer group in all measurable categories, leading to the conclusion that program quality generally corresponds to program maturity. It was also found that the established group devoted more time to computer applications and less to computer-assisted learning than the newer group. Data for each of the variables for the two groups are displayed in a table.

ED318453
Evaluating the Use of Technology in Schools: What We Are Learning. Research Bulletin #2.
Center for the Study of Educational Technology, St. Paul, MN.
Nov 1989, 42p.
EDRS Price: MF01/PC02 plus postage.
Document Type: Collection (020); Project Description (141); Evaluative Report (142)
Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Educational Technology; *Program Evaluation; *Teaching Methods

The seven papers in this collection focus on effective teaching strategies for using technology, the evaluation of school technology programs, and the design and use of technology-related products. Titles of the individual papers are (1) "Student Empowerment in a High Computer-Access Environment—An Exploratory Study (ACOT Report No. 1)" (Charles Fisher); (2) "The Influence of High Computer Access on Students' Thinking: First- and Second-Year Findings (ACOT Report No. 3)" (Robert Tierney); (3) "At-Home Remediation via Technology: An Exploratory Study of a Computer Loan Program" (Gregory Sales and Jason Earle); (4) "A Case Study of a School District's Investigation of Computer- Managed Instruction" (Jason Earle and Gregory Sales); (5) "The Current Availability and Use of Computers in Science Education Grades 7-12 in Minnesota" (Frances Lawrenz, Elizabeth Thornton, and Richard Clark); (6) "A Report of an Evaluation Study of the Computer Applications Now (CAN—Computer Applications Now) Project" (Richard Kimpston and others); and (7) "Frequency and Spacing of Drill and Practice in the Learning of Verbal Information Using a Computer-Based Drill" (S. Del Marie Rysavy). Most of the papers include references. Additional resources on research in educational technology and specifications for manuscripts submitted to the Center for the Study of Educational Technology are also provided.

ED320545
Integrating Technology into the Curriculum.
Clarke, Fayette; Murphy, Ellen
Mar 1989, 9p. Paper presented at the Texas Computer Education Association (TCEA) Conference (9th, Houston, TX, March 5-7, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Teaching Guide (052); Position Paper (120); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Computer Software; *Integrated Curriculum; *Staff Development; *Teacher Role

Noting a low rate of utilization of computers by content area teachers in their classrooms, this paper argues that classroom teachers are generally unaware of how computers can enhance teaching and learning and of how computers can be integrated into the curriculum. In response, an introduction to both productivity and instructional software is provided, and specific examples of instructional software (drill and practice, tutorial, simulation, educational games, and problem solving software) are described. A nine-step model is also provided to assist teachers who wish to integrate computers into their teaching. Finally, the paper describes five basic computer configurations that can be used in the classroom, noting that the teacher's role changes with each configuration. It is concluded that the training of teachers for technology use must begin now so that they are prepared to integrate computers and other information technologies into their teaching in order to meet the needs of the changing society.

ED311868
Exemplary Classroom Computer Use. A Time for Tools. Interactive Technology Laboratory Report #1.
Cohen, Moshe; And Others
California Univ., San Diego, La Jolla. Center for Human Information Processing.
Oct 1983, 104p.
EDRS Price: MF01/PC05 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Demonstration Programs; *Educational Planning; *Microcomputers; *Policy;

*California (San Diego County)

The Policy Board of the Teacher Education and Computer Center (TEC Center) for San Diego/Imperial Counties of California requested researchers at the University of California, San Diego (UCSD), to produce a background paper on the effective local classroom uses of microcomputers. Exemplary site studies of two elementary, two junior high, and two high schools in San Diego County were conducted to examine several examples of innovative computer use and gain an understanding of future possibilities. One elementary school and two middle schools stressed programming as the central feature in the computer curriculum. The other elementary school and two high schools introduced students to a range of special purpose tools such as word processing, database management, telecommunications, and graphics, with programming playing a secondary role. Almost no drill and practice was observed at any of the sites. This result contrasts with reports of national and local surveys which reported drill and practice as the most frequent use followed by programming, and tool use being almost non-existent. The policy implications of this research are that the TEC Center should shift its emphasis from programming to software tool use, and should play a role in: (1) evaluating and distributing software tools; (2) coordinating an effort to open exemplary computer classrooms to visitors; (3) establishing telecommunications links between schools, curriculum developers, and institutions of higher education; and (4) supporting in-service training for teachers and administrators. Four appendixes include a summary of each exemplary computer-use site and three papers written by UCSD researchers which bear on this project. (27 references)

NOTE: *The TEC Centers are no longer in operation as of 1988-89.*

ED311875

Exemplary Educational Computer Use: Coping with Rapid Changes in Technology. Interactive Technology Laboratory Report #12.

Cohen, Moshe; And Others

California Univ., San Diego, La Jolla. Center for Human Information Processing.

Apr 1986, 24p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Diffusion (Communication); *Educational Innovation; *Professional Recognition; *Technology Transfer

Over the past decade educational researchers and curriculum evaluators have dealt with the deviation between a specified educational program and its actual implementation. These differences have been referred to as a critical problem in both the achievement and the evaluation of a program's goals. The research reported here has explored the grassroots implementation of computer-use in classrooms as an alternative approach to program implementation. An ethnographic study of six exemplary elementary classrooms in the San Diego County (California) area found that successful implementation of computers was the result of the combined efforts of an enthusiastic teacher, who became the "computer expert," and a supportive principal, who in most cases did not know about computers but recognized their potential. These implementation efforts resulted in applications that were different from conventional uses, and were evaluated against heterogeneous criteria of success. Diversity in the implementation of computers in education was found to be a useful mechanism for coping with the rapid rate of change in computer technology. The grassroots introduction of computers required extensive efforts on the part of the teachers involved and resulted in the recognition of their academic effort by colleagues. If the implementation of computers had followed the traditional top-down hierarchical approach, it could not have kept abreast of rapid technological changes and might have become overly constrained in its application. (23 references)

ED314018

Computer Documentation: Effects on Students' Computing Behaviors, Attitudes, and Use of Computers.

Duin, Ann Hill

Aug 1989, 37p.

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Test, Questionnaire (160)

Major Descriptors: *Computer Assisted Instruction; *Computer Networks; *Computer Software; *Student Attitudes

This study investigated the effects of a minimal manual version versus a cards version of documentation on students' computing behaviors while learning to use a telecommunication system (Appleshare), students' attitudes toward the documentation, and students' later use of the system. Guidelines from the work of Carroll and colleagues at the IBM Watson Research Center and Reder and colleagues from Carnegie Mellon University were followed when developing the two versions of the documentation. Subjects were 74 junior and senior college- level students enrolled in a technical writing course. Results showed that students in both treatments completed the tasks and felt that the documentation was relatively easy to use. There were significant differences, however, in the students' manual/display coordination, in their ratings of the instruction, and in their later use of the system. The central implication of the study is that documentation for computer-based instruction should center on the learners' goals instead of on the system or the concepts being taught. Statistical data is included throughout the report. Sample pages from the minimal manual and the cards version of the documentation, a goal/task checklist for the Appleshare system, and the student questionnaire are appended. (17 references)

ED317189
A Model Curriculum for Teaching Teachers To Use Computers as an Instructional Aid.
Eriksen, Erik, Ed.
Iowa State Dept. of Education, Des Moines.
May 1989, 11p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Non-Classroom Material (055)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Course Content; *Inservice Teacher Education; *Models; Effective use of computers in instruction is contingent upon a district-level philosophy and plan. That plan may be based on either a computer literacy course model, a scope and sequence model, or an integrated model. Each of these models involves some combination of five categories of computer-related instruction: (1) teaching about computers as the subject of the instruction; (2) teaching computer science (programing language); (3) teaching productivity software (word processing, databases, and spreadsheets); (4) teaching about social issues related to computers; and (5) teaching with a computer to accomplish other instructional objectives. The first two sections of this guide describe each of the three computer use models and the five computer- related instruction categories in detail. Primary uses of computers in instruction (including the teaching of thinking skills, the teaching of data analysis, and the teaching of the writing/revising process) are outlined and described in the third section. Guidelines for software selection are included. The fourth section presents suggestions for planning inservice programs to train teachers to use computers in the classroom. A structure for a teacher curriculum in instructional computing, containing topical outlines for each of the five categories of computer-related instruction, concludes the document.

ED316199
Student Empowerment. The Influence of High Computer Access on Student Empowerment (An Exploratory Study of the Nashville ACOT Site). ACOT Report #1.
Fisher, Charles W.
Apple Computer, Inc., Cupertino, CA.
1989, 15p. Apple Classrooms of Tomorrow Research. For a related report, see ED 304 100. For additional reports in this series, see ED 316 200-203.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Access to Education; *Computer Assisted Instruction

This study identifies classroom conditions that affect student empowerment and examines the relationship between student empowerment and high computer access (HCA). The study involved observation in two fourth grade classrooms— one week in an ACOT classroom (with high computer access), and one week in a non-ACOT classroom (without high computer access). Descriptive data were collected, including field notes, videotapes, interview notes, and student materials. The data were analyzed to identify conditions that affect student empowerment and to explore their relationship to the students' use of computers. Four classroom conditions were identified that promote student empowerment. Empowerment was high when students were able to shape their activities and assignments, when the assignments were sizeable, when the assignments were cognitively and socially complex, and when evaluative feedback to students was primarily private and task-related. The research indicates that these four conditions are also related to HCA. Questions arising from the research are: (1) What is an appropriate level of student empowerment? (2) What kinds of classroom management techniques

work well in student-empowered classrooms? and (3) Is HCA related to the students' use of productivity software? (22 references)

ED321740
Societal Issues and School Practices: An Ethnographic Investigation of the Social Context of School Computer Use.
Friedman, Batya
Apr 1990, 18p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Software; *Intellectual Property; *Microcomputers; *Privacy; *Social Problems

This study examines the relationship between societal forces and school computer use in the context of two issues surrounding computer technology: computer property and computer privacy. Four types of data were collected from district administrators, principals, computer teachers, and students over a 9-month period in a high school with a broad, well-integrated computer education program. Methods employed were naturalistic observation, informal interviews, historical document analysis, and structured interviews. Observed conflicts surrounding classroom interactions pertaining to copying software were partly in response to the institutionalization at the district level of a policy that upheld the property rights of computer programs, but failed to provide compensatory funding for purchasing programs. This inadequate funding helps explain why teachers at times condoned and at times prohibited unauthorized copying of commercial software, and why so little explicit instruction addressed the issue of ethics with students. Observed conflicts surrounding the issue of computer privacy resulted from a conception on the part of the principal, teachers, and students that access to computer files was subordinate to and determined by learning—the central task at hand. This finding helps explain why students neither asserted nor protected the privacy of their files, and why the classroom projected a nonchalant attitude toward accessing electronic information despite the societal climate. (20 references)

ED320542
Collaborative Learning and Computers: What Some New York City Teachers Are Doing, 1988-89. Evaluation Section Report.
Guerrero, Frank; And Others
New York City Board of Education, Brooklyn, NY. Office of Research, Evaluation, and Assessment.
Mar 1990,62p.
EDRS Price: MF01/PC03 plus postage.
Document Type: Review Literature (070); Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Cooperative Learning; *Group Instruction; *Teacher Attitudes; *Teacher Role

The purpose of this study was to better understand teachers' perceptions of collaborative learning and to explicate how they use computer activities to promote cooperative learning experiences. Based on questionnaire responses and group meetings, the Office of Research, Evaluation, and Assessment (OREA) identified seven New York City teachers of various grade levels who appeared to be using computers to encourage student collaboration. Classes ranged from a high school business course using spreadsheets, to special education students using simulations, to elementary school children using word processors for creative writing. OREA staff observed two to three class sessions of each teacher, and later met with them to clarify aspects of the observation and obtain information about related class activities. Of particular interest were the types of activities used, group composition, and the roles of teachers and students in these computer settings. Major findings include: (1) teachers believed that collaborative learning promoted the goals of problem solving and report production; (2) teachers used several types of software in collaborative learning activities; (3) most computer activities were structured so that students worked in pairs; (4) preparation did not involve instruction of students in social skills necessary for collaboration; (5) little or no role or task differentiation was observed; and (6) teachers acted as facilitators of the group work. Among the recommendations is that teachers be provided with further training and support for implementing collaborative learning. Appended are brief profiles of each of the seven class sites. (35 references)

ED322112
A Computer Coordinator's Network; Filling a Collegial Void.
Handler, Marianne G.

11 May 1990, 14p. Paper presented at the Technology and Teacher Education Conference (Greenville, NC, May 11, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Computer Science; *Resource Teachers; *Shared Resources and Services; *Social Networks; *Staff Development

The rapid growth of computers in schools has brought about the equally rapid growth of persons to coordinate computer education programs and work with teachers and students. For these persons there is often a "collegial void," a lack of others with whom to share ideas and concerns. The purpose of this paper is to describe the development and evaluation of a computer coordinators' network, designed to provide support for teachers who have responsibility for computer education in elementary schools of their district. This collaborative environment allowed for persons with similar responsibilities to discuss and reflect upon common concerns and problems. The value of networking as a form of staff development is demonstrated. Recommendations related to planning, organization, structure, and on-going activities of the group are discussed in the paper.

ED319378

Teaching Technology: Creating Environments for Change. Technical Report No. 45.

Honey, Margaret A.; And Others

Bank Street College of Education, New York, NY. Center for Children and Technology.

Oct 1987, 13p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available from: Center for Children and Technology, Bank Street College of Education, 610 W. 112th Street, New York, NY 10025.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Courseware; *Curriculum Design; *Discovery Learning; *Elementary School Mathematics; *Teacher Attitudes

Based on observation, interviews, and questionnaires, the first section of this paper discusses lessons learned while watching teachers use the first set of "The Voyage of the Mini" materials (a video, computer, and print package). The focus is on the need to create an environment that will support an inquiry- based curriculum. The second section describes the design of one of the software modules, Maya Math, to address this need. A segment of the module is explained, and ways in which the materials have been designed to facilitate the discovery of specific math concepts are illustrated. Experiences of a teacher currently field testing the module are then presented. (7 references)

ED317960

IBM Directory of Educational Objectives and Networkable Software for Grades K- 8 in Language Arts, Reading, and Mathematics.

IBM Corp., Atlanta, GA. Educational Systems.

May 1989, 97p.

EDRS Price: MF01/PC04 plus postage.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Software Selection; *Courseware; *Language Arts; *Mathematics Instruction; *Reading Instruction

Intended as an easy-to-use quick reference tool for finding good software packages to meet specific educational objectives in language arts, reading, and mathematics, this directory focuses on highly rated software designed to teach basic learning and thinking skills. Software listed in the directory is available from International Business Machines (IBM) and other selected vendors. The directory includes subject area educational objectives and software matrices, an alphabetical list of software titles, and software publisher contact information.

ED320563

Computer Assisted Instruction: A Support for the Mastery Learning System.

Koohang, Alex A.; Stepp, Sidney L.

[1984], 10p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Instructional Development; *Mastery Learning; *Models

It is argued that computer assisted instruction might be an answer to the scheduling problems resulting from the implementation of mastery learning programs in the public schools. The mastery learning model proposed by Carroll and the transformation of this model into a working model by Bloom are described. The difficulty of implementing mastery learning given the fixed schedules of public schools is noted, and the potential contribution of computer assisted instruction (CAI) is outlined, noting that CAI facilitates instruction at the student's own pace while reducing constraints on teachers' time and allowing them to devote more time to students requiring remedial instruction. Criteria for instructional software which can support mastery learning are outlined. It is noted that software must be clear and understandable; must motivate students actively in drilling subject matter, passively in reinforcing all learned subject matter, and interactively to give fast, positive feedback; must move consistently through subject matter and end at a given mastery level of objectives; and must be both user-friendly and entertaining. Emphasizing that the computer cannot replace the teacher or the textbook, the paper concludes with a model for CAI use in mastery learning situations which incorporates initial teacher instruction, student practice (individually and in groups), formative testing, teacher remediation and CAI lesson referral, CAI (paired or with small group practice), further teacher remediation, and summative testing. (5 references)

ED319357
Cost-Effectiveness of Alternative Approaches to Computer-Assisted Instruction.
Levin, Henry M.; And Others
Stanford University., CA. Institute for Research on Educational Finance and Governance.
Nov 1986, 81p.
Sponsoring Agency: National Institute of Education (ED), Washington, DC.
EDRS Price: MF01/PC04 plus postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Computer Assisted Instruction; *Cost Effectiveness; *Mathematics Achievement; *Reading Achievement

Operating on the premise that different approaches to computer-assisted instruction (CAI) may use different configurations of hardware and software, different curricula, and different organizational and personnel arrangements, this study explored the feasibility of collecting evaluations of CAI to evaluate the comparative cost-effectiveness of several alternative CAI approaches. The analysis on which these evaluations are based was carried out in four stages: (1) a search was initiated for evaluations of different approaches to CAI that could be used for cost-effectiveness purposes; (2) each of the evaluations was reviewed in order to select those that met the criteria established for the study, i.e., a single focus on CAI, common objectives, acceptability of evaluation methods, and availability of information for assessing costs; (3) effect sizes for the criterion of concern were estimated; and (4) the costs of each intervention were estimated. Analysis of eight K-12 CAI programs, in which the common educational outcome was that of reading and/or mathematics achievement, indicated great variation in effect size from study to study, and led to the conclusion that specific approaches to CAI and the realities of implementation account for differences in effectiveness. Data on the costs and effect sizes of each of the CAI programs selected for the study are provided in tables throughout the text and in the appendix of the report. (24 references)

ED311869
Computers in Education: The Process of Change. Interactive Technology Laboratory Report #2.
Levin, Sandra Allan
California University, San Diego, La Jolla. Center for Human Information Processing.
Mar 1984, 52p.
EDRS Price: MF01/PC03 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Adoption (Ideas); *Diffusion (Communication); *Educational Innovation; *Microcomputers; *Teacher Attitudes

This study traces the introduction of microcomputers in two elementary schools, one middle school, and one high school in San Diego County, California. To determine whether or not the process of introducing microcomputers in education includes the necessary elements for change outlined by S. Saranson—i.e., a positive concept of the change, involvement of those affected, and the development of constituencies—four teachers from each school were interviewed and observed in their classrooms to collect data on their training on microcomputers, their attitudes about microcomputers in the schools, their strategies for integrating computers into their classrooms, and conflicts engendered at all levels of the school system. In general, the study revealed a positive attitude on the part of teachers, principals, district administrators, and groups outside the schools toward the introduction of computers. Educators

throughout the school system have been involved in this innovation. Teachers themselves have set goals and discussed implementation strategies with other teachers, principals, school district administrators, and business professionals. Constituencies have been developed as a means of survival in the coming years. Since all three of Sarason's conditions have been met in the schools in this study (resulting in a grassroots rather than a "top-down" change strategy, unlike the strategy observed in many other change processes), it is concluded that the introduction of computer technology is likely to be successful.

ED320565

Locus of Control and Learner Control of CAI.

Lopez, Cecilia L.; Sullivan, Howard J.

1990, 26p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Academic Achievement; *Computer Assisted Instruction; *Hispanic Americans; *Learner Controlled Instruction; *Locus of Control; *Student Motivation

The purpose of this study was to investigate the effects of three levels of learner control (no control, moderate control, and high control) on the achievement and continuing motivation of Hispanic students. Two weeks prior to the experimental part of the study, 101 seventh and eighth grade Hispanics were pre-assessed along an internal-external dimension. Subjects were stratified by sex and grade, then randomly assigned within classes to one of three versions of a computer-assisted instructional program on insects. In the no learner control version, subjects were assigned to the complete computer-assisted instruction (CAI) program consisting of informational screens plus all practice questions, feedback, and content reviews for missed items. Subjects in the moderate learner control version received the informational screens, practice items, and feedback, but had the option of bypassing each content review. The high learner control version gave students the option of bypassing each set of practice questions, as well as the content review, for each question they responded to but answered incorrectly. Continuing motivation data revealed a significant preference to study science when it was presented on the computer as compared to study of another subject in paper and pencil form. Analysis of en route data revealed that subjects under high learner control chose to receive practice 89 percent of the time, resulting in a small practice difference of 11 percent between program control and high learner control. Although females were found to have a much more internal locus of control than males, there was no evidence that Hispanic learners with an internal locus of control perform better than those with an external locus when given a relatively high degree of control in a CAI program. (32 references)

ED311874

Microcomputers and Classroom Organization: The More Things Change the More They Change Each Other. Interactive Technology Laboratory Report #10.

Mehan, Hugh

California University, San Diego, La Jolla. Center for Human Information Processing.

Dec 1985, 24p. Paper presented at the Annual Meeting of the American Anthropological Association (Washington, DC, December 1985).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Cooperative Learning; *Educational Innovation; *Microcomputers; *Social Environment; *Technology Transfer

This study examined the effect of microcomputer use on classroom social organization and curriculum. To determine whether teachers who have a microcomputer available for instruction use time and space differently and make modifications in what they teach and how they teach, observations of four elementary school teachers (grades two through six) in San Diego were conducted as they introduced and used microcomputers in their classrooms. The students represented a diverse population in terms of measured ability, socioeconomic status, and ethnicity. Their teachers had varying degrees of computer knowledge. Findings indicate that there was no significant change in the way in which teachers arranged the space and used time in their classrooms as a result of having microcomputers available for instruction on a full time basis. The microcomputers were incorporated into previously established practices for organizing instruction, regardless of the teacher's previous knowledge of computers, demonstrating the resilience of classrooms when attempts are made to introduce change. A different sense of social relations developed. Students assisted each other at the computer and cooperated in the completion of assigned tasks. Microcomputers had an impact on the curriculum by providing a means to meet previously established goals as well as a means through which previously unattainable goals could be reached. (31 references)

ED310763

To Support the Learner: A Collection of Essays on the Applications of Technology in Education. Enhancing Learning through Technology.

Office of Educational Research and Improvement (ED), Washington, DC.

1989, 216p.

EDRS Price: MF01/PC09 plus postage.

Document Type: Collection (020); Review Literature (070); Position Paper (120)

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Courseware; *Curriculum Enrichment; *Educational Innovation; *Technology Transfer

This collection of 23 essays on the applications of technology in education, commissioned by the U.S. Department of Education, is divided into four chapters. The first chapter examines the effect of media on the message to be delivered, and includes essays on classroom use of television, the use of computers to support the learner, and telecommunications in the classroom. The second chapter examines the effect of media on learning, and includes papers on computer instruction and thinking skills, computer development for equity in computer education, and online computer databases in school library media centers for developing skills in information use and critical thinking. Chapter three examines the use of technology to support the disciplines, including science, humanities, reading, and writing instruction. The final chapter focuses on the organizational requirements in schools that choose to use technology, and includes essays on technology introduction, copyright law, and evaluation of a school's technology program. Each chapter begins with a synthesis of the essays included. Most essays contain references and some contain recommended readings.

ED316216

Computers in the Classroom: A Status Report.

Ognibene, Richard

Jul 1989, 17p. Paper presented at the Summer Meeting of the Association of Teacher Educators (Tacoma, WA, July 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Educational Innovation; *Teacher Attitudes; *Teacher Student Relationship; *Technology Transfer

The current plateau in the use of computers in the schools is discussed. An explanation for this is drawn from brief historical examples that demonstrate the inherent conservatism of schools and teachers, the problem of integrating technology in the classroom, and the resistance of teachers to practices that present a perceived threat to good interpersonal relationships with students. In addition, contemporary criticisms are noted that help explain the diminished enthusiasm for computers in schools. Reference is made to disappointing research results on computers and student learning and development, and a summary assessment of the quality of software typically available for schools is presented. The paper concludes with a recommendation for the use of computers as a learning tool, emphasizing that computers should become meaningfully embedded in the curriculum and routine pedagogy of schools. (28 references)

ED321760

Integrating Computers into the Curriculum: A Formative Evaluation.

Orr, Cornelia S.; And Others

Nov 1989, 31p.; Paper presented at the Annual Meeting of the Florida Educational Research Association (Tallahassee, FL, November 1989).

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Computer Oriented Programs; *Cooperative Learning; *Integrated Curriculum; *Learning Centers (Classroom); *Team Teaching

This report describes the formative evaluation of Project CHILD (Computers Helping Instruction and Learning Development), a project that: (1) integrates computer technology into the curriculum areas of reading, language arts, and mathematics, and (2) includes primary (K-2) and intermediate grade (3-5) learning-center clusters taught by collaborative teams of three teachers specializing in different subject areas. A description of the two program sites—Volusia County and Okaloosa County school districts in Florida—is followed by an outline of the essential components of the project, its goals and objectives, and its philosophical and theoretical foundations, highlighting the project's focus on opportunities for active learning, shared responsibility and learner control, cooperation, and fair competition. The four phases of the comprehensive evaluation plan—development, initial implementation or formative evaluation, continued implementation and summative evaluation, and dissemination—are described.

The results presented are based on: (1) classroom observations and teacher meetings; (2) interviews involving administrators and teachers; (3) teachers' journals; (4) the nominal group technique (conducted during teacher retreats); (5) surveys of teachers, principals, and parents; (6) parent feedback (collected during meetings with parents); and (7) student performance analysis. Findings are summarized and 11 issues concerning components of the project are addressed. The report concludes with recommendations concerning teacher journals, the use of teacher aides and other volunteers, planning time and time management, availability of materials and supplies, student work station utilization, reporting to parents, and program continuation. (18 references)

ED319360
Ideas for Integrating the Microcomputer with Instruction.
Podany, Zita
Northwest Regional Educational Laboratory, Portland, OR.
Dec 1989, 43p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
EDRS Price: MF01/PC02 plus postage.
Document Type: Teaching Guide (052); Project Description (141)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Lesson Plans; *Microcomputers

This report focuses on the integration of computers in elementary and middle school instruction. Based on interviews and on-site visitations with teachers using computers in conjunction with their regular instruction, seven lessons are described: (1) desktop publishing for grades 4 and 5; (2) interpretive writing for any grade level; (3) student-authored word problems for grades 6, 7, and 8; (4) long-distance telecommunications for grades 3 and up; (5) teaching students how to learn for grades 4 and 5; (6) nutrition for grades 6, 7 and 8; and (7) mapping the Western Hemisphere for grades 5 and 6. Included for each lesson are a narrative description and lesson plan which outlines target audience, hardware, software, instructional purpose, objectives, pre- activities, computer activities, follow-up activities, time required, schedule, management suggestions, instructional materials, and teacher preparation. For some lessons, examples of student work and other ideas are also provided. A directory of producers of software mentioned in the report is attached.

ED311870
Learning with Interactive Media: Dynamic Support for Students and Teachers. Interactive Technology Laboratory Report #4.
Riel, Margaret M.; Levin, James A.
California University, San Diego, La Jolla. Center for Human Information Processing.
8 Oct 1985, 27p.
EDRS Price: MF01/PC02 plus postage.
Document Type: Review Literature (070); Position Paper (120)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Individualized Instruction; *Learning Strategies; *Technology Transfer

The controversy over appropriate educational uses of computers is framed along a continuum based on the amount of support provided to the user. Software programs in which the user's role is to respond in a pre-determined structure (program controlled software) anchors one end of the continuum, while software which empowers the user to create new ways to use the computer (user control software) anchors the other end. Both positions in the controversy are too static. An alternative position is proposed: a process of educational software use in which the amount of assistance provided by the computer is systematically decreased as novices gain expertise. This principle, termed "dynamic support," applies to students learning to write and to teachers learning to incorporate computers into their classrooms. (21 references)

ED319367
What Today's Educational Technology Needs: Defensible Evaluations and Realistic Implementation.
Roweton, William E.; And Others
[1988], 13p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Position Paper (120)
Major Descriptors: *Computer Assisted Instruction; *Computer Graphics; *Educational Technology; *Faculty Development; *Program Evaluation; *Technology Transfer

It is argued that in order to make computer assisted instruction effective in the schools, educators should pay more attention to implementation issues (including modifying teacher attitudes, changing classroom routines, and offering realistic technical training and support) and to producing understandable product and performance evaluations. Issues identified for further evaluation are covariates such as teachers' and students' prior computer experience; the ergonomic design of computerized classrooms; design issues resulting from the pictorial representation of information; and the impact of educational technology integration on classroom social environments. (25 references)

ED311448
Computer Applications: A Schoolwide Innovation.
Sanacore, Joseph; Alio, Al
1989, 21p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Oriented Programs; *Word Processing

An effort to implement a schoolwide innovation concerning computer applications begun in the English Department of the Hauppauge Middle School on Long Island, New York, is described. The program was proposed and implemented through a series of meetings, discussions, workshops, and orientations for teachers and administrators. English teachers, who attended workshops to refine their knowledge and to update the previously developed curriculum, were each assigned to four English sections and to one computer applications session which provided students with worthwhile exposure for ten weeks of the school year. The primary goals of the applications course were to teach children in seventh and eighth grade the current methods of word processing, to develop their skills with the data base, and to keep students up to date with regard to the role of computers in their world and society at large. The seventh graders were introduced to keyboarding, word processing, basic graphic techniques and data base systems. Students in the eighth grade first took a review course and then, with the cooperation of teachers from other disciplines, produced reports which were recognized for credit in both the computer laboratory coursework and other subject areas. Students also produced brief research papers using written resources and computer facilities of the library media center. Positive feedback from administrators and faculty, as well as students, attest to the success of this program.

ED319370
Study of Issues Related to the Implementation of Computer Technology in Schools. Final Report, July, 1981. Technical Report No. 2.
Sheingold, Karen; And Others
Bank Street College of Education, New York, NY. Center for Children and Technology.
Jul 1981, 142p.
Sponsoring Agency: National Institute of Education (ED), Washington, DC.
EDRS Price: MF01/PC06 plus postage.
Document Type: Research Report (143); Test, Questionnaire (160)
Major Descriptors: *Computer Assisted Instruction; *Microcomputers; *School Districts; *Use Studies

This study examined ways in which microcomputers are used in schools and the complex issues that surround their implementation. Three fictional geographically distinct school districts with a diversity of microcomputer applications at both the elementary and secondary levels were studied: Salerno, a large southern city; Granite, a midwestern city; and Greenview, a small suburban community in the northeast. A research team interviewed people at all levels of the school system—district administrators, school administrators, computer resource personnel, media specialists, teachers, students, and community persons. Students were observed using computers in a variety of contexts. Six trends emerged which raise important questions for future research: (1) differential access to microcomputers; (2) the emergence of new roles in response to microcomputers; (3) the lack of integration of microcomputers into elementary classrooms and curriculum; (4) the inadequate quality and quantity of software; (5) the inadequate preparation of teachers for using microcomputers; and (6) the lack of knowledge of effects and outcomes. Interview guides and a classroom observation form are appended, and 69 references are listed.

ED320536
Issues Around Integrating Technology into the Educational Environment.
Vitchoff, Lorraine
[1989], 36p.
EDRS Price: MF01/PC02 plus postage.

Document Type: Review Literature (070); Position Paper (120)

Major Descriptors: *Computer Literacy; *Computer Uses in Education; *Educational Planning; *Power Structure; *Staff Development; *Teacher Education

This discussion of the issues relating to the integration of computer technology into the educational setting is divided into six major sections: (1) Board of Educations' Commitments to Thorough and Continuing Training Programs in the Area of Computer Technology; (2) Educating the Present Superintendents, Business Administrators, and Decision Makers in Education in the Area of Computer Uses in Education; (3) Including the Area of Technology in the College Course Work of Future Teachers and School Administrators; (4) Political Structure and Decision Makers; (5) Strengths, Weaknesses, Opportunities, and Threats Relating to the Integration of Technology into the Educational Setting; and (6) Plan of Action for Integrating Technology into the Educational Environment. Appended are an outline of recommended goals and objectives for a computer literacy course for teachers, a diagram of the political hierarchy involved in the decision to integrate technology into the educational setting, and a list of interview questions used with decision makers in preparing the fourth section of the paper. (16 references)

Special Applications

Artificial Intelligence

ED319412
On the Nature and Function of Explanation in Intelligent Information Retrieval.
Belkin, N. J.
[1988], 14p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Position Paper (120)
Major Descriptors: *Expert Systems; *Information Retrieval; *Man Machine Systems; *Online Searching; *Search Strategies

This paper discusses the complexity of explanation activity in human-human goal-directed dialogue and suggests that this complexity ought to be taken into account in the design of explanation in human-computer interaction. A general model of clarity in human-computer systems is proposed, incorporating explanation as one component. On the basis of this model, a model of human-intermediary interaction in the document retrieval situation which emphasizes cooperative model-building for the purpose of developing an appropriate search formulation, and the results of empirical observation of human user/human intermediary interaction in information systems, a model is proposed for explanation by the computer intermediary in information retrieval. (22 references)

ED316205
Is Artificial Intelligence Intelligent?
Nielsen, Janni
1984, 12p. Paper presented at a Conference entitled "LEFT ALIVE" (London, England, October 29-November 4, 1984).
EDRS Price: MF01/PC01 plus postage.
Document Type: Position Paper (120); Conference Paper (150)
Major Descriptors: *Artificial Intelligence; *Cognitive Processes; *Computers; *Epistemology; *Information Technology; *Sex Differences

In order for information to be stored and processed in a computer, it must be reduced to data and organized and systematized in accordance with the rules and principles of formal logic. Reducing manifold reality to data for use by the computer results in loss of information because an arbitrary screening of data eliminates that gathered by the uniquely human modes of cognition (kinetic, emotive, and symbolic). For this reason, it is argued, it is not surprising that women are most skeptical of new information technology. The development in women—to a greater degree than in men—of kinetic, emotive, and symbolic modes of knowing has been the product of socialization and the division of labor in society, and is in opposition to the principles embodied in information technology. It is argued that the closing out of these modes of cognition resulting from the reduction of holistic experience to data is a limitation of artificial intelligence and cognitive science, and that an effort to achieve holism should be promoted.

ED315055
The INTELLIGENT RuleTutor: A Structured Approach to Intelligent Tutoring. Final Report.
Scandura, Alice B.
Intelligent Micro Systems, Inc., Narberth, PA.
1 Feb 1989, 85p.
Sponsoring Agency: Department of Education, Washington, DC.
EDRS Price: MF01/PC04 plus postage.
Document Type: Review Literature (070); Project Description (141)
Major Descriptors: *Artificial Intelligence; *Computer Assisted Instruction; *Diagnostic Tests; *Programed Tutoring

This final report describes a general purpose system for developing intelligent tutors based on the Structural Learning Theory. The report opens with a discussion of the rules and related constructs that underlie cognitive constructs in all structural learning theories. The remainder of the text provides: (1) an introduction to the Structural Learning Theory as it relates to simple intelligent computer based instruction (ICBI) systems and authoring; (2) a description and analysis of the MicroTutor II arithmetic tutor; (3) an overview of the Structural Learning Theory and the kinds of intelligent tutor systems that

have been developed based on this theory; (4) a discussion of the RuleTutor prototype itself; (5) an explanation of the PRODOC Computer software development system, which is designed to represent content in the form needed for use by any planned modular ICBI system; (6) sample arithmetic rules (constructed using PRODOC) to be used in conjunction with the intelligent RuleTutor; and (7) a review of related research and a summary of major points. A number of Scandura FLOWforms (an extended form of a flow chart) are interspersed throughout the text, and four additional FLOWforms illustrating simulations for addition, subtraction, multiplication, and division are appended. (72 references)

Cognitive Processes and Thinking Skills

ED309742
Computers and Complex Thinking. May 1986 and October 1986.
Patterson, Janice, Ed.
National Center on Effective Secondary Schools, Madison, WI.
Computers and Complex Thinking, May, Oct 1986
1986, 25p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Serial (022); Project Description (141); Research Report (143)
Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Problem Solving

These two issues of a newsletter address the use of computers in developing complex thinking skills. The first issue, for May 1986, includes articles on: environmental science computer applications; computers and higher order thinking in Mineola, New York; a description of case study research identifying effective uses of computers in developing thinking skills; and a summary of computer education research in science, mathematics, writing and programming. The second issue, for October 1986, includes profiles of microcomputer usage in high schools in Eugene, Oregon, and Philadelphia, Pennsylvania, as well as articles on the use of computer and videodisc technologies to teach thinking skills, a computer network in Maryland schools, and computer databases designed for teacher training at Syracuse University. Both issues include brief reports of computer usage survey results, conference announcements, and software descriptions.

ED315061
The Engagement of Thinking Processes: A Two Year Study of Selected Apple Classroom of Tomorrow Students.
Tierney, Robert J.
Ohio State University, Columbus.
30 Sep 1988, 75p.
Sponsoring Agency: Apple Computer, Inc., Cupertino, CA.
EDRS Price: MF01/PC03 plus postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Classroom Environment; *Cognitive Processes; *Computer Assisted Instruction; *Skill Development; *Student Evaluation; *Writing Processes

This study of the Apple Classroom of Tomorrow (ACOT) environment focused on the potential of a computer-saturated environment to facilitate students' thinking processes. Four approaches were used: (1) a longtitudinal approach to study student growth and development; (2) observations of students' behavior while writing with the computer to study their thinking processes; (3) daily interviews with students to explore the nature of their thinking while writing; and (4) lengthy generalized interviews to determine students' use of the computer in the home and school environment. ACOT students in the ninth and tenth grades were found to be both confident and positive about their computer experiences. Students found the computerized learning to be more challenging, with Hypercard, computer-based robotics, and computer graphics affording a more dynamic learning experience. The graphic feature available with the Macintosh appeared to be a vital feature of the students' writing and the nature of engaged thinking strategies. Students also demonstrated an expanding repertoire of planning and revision behavior, and several students commented that using computer-generated text allowed them to make more revisions and check for coherence. Finally, ACOT students who had returned to regular classroom environments had maintained the computer-based skills they had acquired, although they were disappointed at the lack of computer opportunities in the regular classroom environment. The text is supplemented by two diagrams and numerous charts.

ED316201

Student Thinking Processes. The Influence of Immediate Computer Access on Students' Thinking. First- and Second-Year Findings. ACOT Report #3.

Tierney, Robert J.

Apple Computer, Inc., Cupertino, CA.

1989, 18p. Apple Classrooms of Tomorrow Research. For additional reports in this series, see ED 316 199-203.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Computer Literacy; *Problem Solving; *Writing Instruction

This 2-year longitudinal study explored whether computers promote more sophisticated thinking, and examined how students' thinking changes as they become experienced computer users. The first-year study examined the thinking process of four ninth-grade Apple Classrooms of Tomorrow (ACOT) students. The second-year study continued following these students as well as five new ACOT ninth graders. Over two years the research team observed lessons involving writing and writing-related activities using computers. Researchers videotaped classroom activities and kept running records of student behaviors and interactions. In daily debriefings, students explained what they were thinking during their lessons. In more general interviews, they discussed the role of the computer and their attitudes toward it. All of the students progressed markedly from the beginning of the study. They all became fluent computer users and all significantly expanded their skills, confidence, ambitions, and willingness to share their work with others. Students developed notable experience in problem solving with their computers, integrating visual representation of ideas with text, and developing, refining, and restructuring ideas through multiple drafts that included both text and graphics. During the study, researchers also observed students working with hypermedia technology in ways that suggest further possibilities for enhancing students' thinking skills. (4 references)

ED313850

Application of Technology to Cognitive Development.

Wilson, Louise

Jul 1989, 21p.; In: Martin, David S., Ed. *International Symposium on Cognition, Education, and Deafness (2nd, Washington, DC, July 5-8, 1989). Working Papers: Volume II.*

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150); Review Literature (070)

Major Descriptors: *Cognitive Development; *Computer Assisted Instruction; *Computer Managed Instruction; *Hearing Impairments; *Language Handicaps; *Teaching Methods

This report presents a summary of research being conducted at the University of Minnesota in which new technologies are being applied to development of cognition in hearing impaired learners. The study involved an application of concept analysis, information-processing theories, and group-based interactive technology in the teaching of mathematical word-problem-solving. Teaching strategies were implemented by means of a group interaction technology system called "Discourse." Discourse allows the teacher to enter questions and answers into the system and to display them on a large video screen. While questions or problems to solve are displayed, the students enter responses into individual keypads and are given immediate feedback by means of a visual blinking light and audio "beep." In the study, a group of hearing-impaired and severely language-delayed learning disabled students (N=25) were taught mathematical word problem-solving strategies using concept analysis and identification adapted to the Discourse system.

Computer Literacy

ED318454

Introduction to Computers: Parallel Alternative Strategies for Students. Course No. 0200000.

Chauvenne, Sherry; And Others

Palm Beach County Board of Public Instruction, West Palm Beach, Fla.

1989, 499p.

Sponsoring Agency: Florida Diagnostic and Learning Resources System, West Palm Beach.

EDRS Price: MF02/PC20 plus postage.

Document Type: Teaching Guide (052); Test, Questionnaire (160)

Major Descriptors: *Computer Graphics; *Computer Literacy; *Computer Software; *Databases; *Problem Solving; *Word Processing

Parallel Alternative Strategies for Students (PASS) is a content-centered package of alternative methods and materials designed to assist secondary teachers to meet the needs of mainstreamed learning-disabled and emotionally- handicapped students of various achievement levels in the basic education content courses. This supplementary text and workbook for an introductory computer course is divided into 14 chapters which address such topics as how computers work, computer hardware, computer software, problem solving with computers, an introduction to BASIC, word processing, databases and computer communication, spreadsheets and graphics programs, computer crime and abuse, computers and careers, and supercomputers of the future. Each chapter contains a teacher's guide (which includes intended learning outcomes, suggested learning activities, and a list of vocabulary words for each unit) and student materials (including study sheets, textbook work sheets, work sheets, and sample tests). Also included are answer keys for the tests and software worksheets.

ED311120
Computers and Opportunities for Literacy Development. ERIC/CUE Digest No. 54.
Kleifgen, Jo Anne
ERIC Clearinghouse on Urban Education, New York, N.Y.
Aug 1989, 4p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available From: ERIC Clearinghouse on Urban Education, Teachers College, Box 40, Columbia University, New York, NY 10027 (free).
EDRS Price: MF01/PC01 plus postage.
Document Type: ERIC Product (071); Project Description (141)
Major Descriptors: *Computer Uses in Education; *High Risk Students; *Language Skills; *Literacy Education; *Process Education

The computer revolution was expected to help American schools to teach traditionally unsuccessful students more effectively and to reduce educational inequalities. Research suggests, however, that computer technology has in many ways actually widened the gap in educational opportunity. Nevertheless, this report finds that computers and collaborative learning environments can be used effectively to develop language and literacy skills in students who have difficulty with traditional teaching methods. Inequities in school computer use result from some of the following factors: (1) unequal access to computers in the home; (2) limited access in ethnic and language minority schools; (3) reductionist teaching approaches; and (4) limited access and applicability for female students. Research indicates dramatic linguistic and academic improvement when students are given access to problem solving, word processing, and communications software, especially for use in collaborative tasks. The coupling of the process approach and computer use in group writing instruction encourages purposeful social interaction in the classroom and engenders both spoken and written language enrichment. The integration of computers into the language arts curriculum involves female students in technological literacy. Electronic mail has also developed as an important tool in literacy development. Emphasis is placed on the role of skilled teachers in engaging all students through computers. A list of 12 references is appended.

ED318444
Elementary School Computer Literacy.
New York City Board of Education, Brooklyn, N.Y.
1987, 355p.
Available From: New York City Board of Education, Curriculum Unit, PS 206, Room 310, Neck Road and East 22nd Street, Brooklyn, NY 11229.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Literacy; *Computer Science Education; *Microcomputers; *Programing

This curriculum guide presents lessons for computer literacy instruction in the elementary grades. The first section of the guide includes 22 lessons on hardware, covering such topics as how computers work, keyboarding, word processing, and computer peripherals. The 13 lessons in the second section cover social topics related to the computer, including applications of computers, computer ethics, and advantages and disadvantages of computers. The five lessons comprising the third section cover the history and future of computers. The fourth section presents 45 lessons on programming; topics include: BASIC commands, variables, editing, graphics, and commercial software. Performance objectives, vocabulary, motivation, aim, development, application, summary, and exercises are included for each

lesson. The guide is intended to be used with a set of task cards. The appendixes include: (1) advice to new computer teachers; (2) advice to experienced computer teachers; (3) guidelines for classroom organization; (4) guidelines for classroom management; (5) guidelines for security; (6) a discussion of computers in special education; (7) software duplication guidelines; (8) instructions for copying diskettes for the Apple IIe and Apple II Plus; (9) instructions for copying diskettes for the IBM/Tandy; (10) guidelines for caring for diskettes; (11) a glossary of computer terms; and (12) a directory of New York City Board of Education Technical Assistance Centers.

Computer Networks (including Distance Education and Telecommunications)

ED314028

Developing Telecommunication Linkages for Microcomputer-Aided Instruction. TDC Research Report No. 1.

Blinn, Charles R.; And Others

Minnesota Univ., St. Paul. Telecommunications Development Center.

Jan 1989, 13p. For other reports in this series produced by the Telecommunications Development Center, see ED 314 029-033.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors *Computer Assisted Instruction; *Delivery Systems; *Distance Education; *Teleconferencing; *Training Methods

A project undertaken at the University of Minnesota evaluated two microcomputer teletraining systems (audiographic conferencing) to determine the effectiveness of this technology for point-to-point and multipoint distance education. System design requirements included broadcast keystrokes, error checking, master-slave linkages, simultaneous voice and data transfer over one telephone line, simultaneous file transfer, and feedback utility. Four pilot tests were conducted with systems by two vendors (Tori and Optel). System components at each location included a modem, a standard telephone line, a device for amplifying voices, and appropriate software. A commercial teleconferencing bridge was used to facilitate linking the instructor with two or more locations. Results indicated that microcomputer teletraining can greatly reduce costs without sacrificing effectiveness. To pay back the initial investment, this technology is recommended where long-term training requirements are conducted on a frequent basis to multiple remote sites. Recommendations for using the technology and for further research are listed. Tables provide background data on the pilot tests and cost comparisons of teletraining and instructor travel. Twelve references are listed.

ED320158

Literature Comes Alive with KidLink Computer Conferencing (Telecommunications a Key Link to Literacy and Literature).

Casey, Jean M.

6 May 1990, 12p. Paper presented at the Annual Meeting of the International Reading Association (35th, Atlanta, GA, May 6-11, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Computer Networks; *Computer Uses in Education; *Educational Technology; *Telecommunications

Telecommunications opens a window to interaction with famous literary characters and to meaningful communication and a new worldwide audience for the budding author. Components of "kids2kids," a project in Orange County, California, designed to expand the audience of student authors, include: The Writing Lesson, Word Processing, and Telecommunications. Another project, KidConnections, focuses on interactive student writing exchanges emphasizing history and social science content. Students in Hanover County, Virginia, learned to use the conference system to process each other's poetry cooperatively and to communicate with literary characters played by student interns, graduate students, and professors. Training student teachers in telecommunications through programs like TeacherNet and TeacherLink insures that innovative educators will be present in the classroom to facilitate this new type of student link to literature. TeacherNet enabled students to send supervisors lesson ideas and plans prior to site visitations and to receive timely feedback from all project participants. The establishment of a support system among participants improved communication and encouraged ease of writing. TeacherLink allowed teachers to interact effectively with other teachers with similar interests around the world. Apple Talk ties faculty, staff, student microcomputers, and local schools through an Apple IIe electronic bulletin board. Beginning Teacher Computer Network helped

beginning teachers help each other gain personal insights in areas of multicultural settings and languages other than English.

ED317205
Summer Telelearning for Academic Renewal. A Team-Taught Audiographic Distance Learning Program for At-Risk Eighth Graders.
Delaware-Chenango Board of Cooperative Educational Services, Norwich, NY.
1989, 23p. Developed by the Telelearning Project.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Test, Questionnaire (160)
Major Descriptors: *Computer Assisted Instruction; *Distance Education; *Dropout Prevention; *High Risk Students; *Program Evaluation; *Teleconferencing

In July and August 1989 the Delaware-Chenango Board of Cooperative Educational Services (BOCES) piloted the Summer Telelearning for Academic Renewal (STAR) program, a telecommunications-based program aimed at reducing the potential for at-risk eighth graders to drop out of school. Students were selected for the program by their home schools on the basis of their grades and other factors suggesting that they were likely not to complete high school, including attitude, disruptive behavior, poor attendance records, and home environment. An evaluation of the program suggests that telelearning can be used with at-risk students, although a summer program may not be the most appropriate application of the medium. The STAR experience also suggests that small group activities and team teaching can be extremely helpful in molding appropriate learning behavior of at-risk students. This report describes the historical perspective and development of the program; provides overviews of the evaluation process, the team teaching approach, teacher selection methods, enrollment guidelines, and program activities; and discusses evaluation findings, including observations on group interaction of students, team teaching, and computer use by students. Evaluation forms used by students to assess the program are appended together with summaries of their responses.

ED316206
A Curriculum Model for Teaching Telecommunications to Middle and Secondary School Students.
Daughenbaugh, Richard L.
University of South Alabama, Mobile. College of Education. May 1989
84p.
EDRS Price: MF01/PC04 plus postage.
Document Type: Teaching Guide (052); Test, Questionnaire (160)
Major Descriptors: *Computer Software; *Electronic Mail;
*Modems; *Telecommunications

This curriculum guide is intended for use in teaching a unit on telecommunications to students with a basic understanding of computing. Introductory materials spell out the purpose of the unit—to provide an introduction to the sending and receiving of electronic information using a personal computer system and the telephone communications system—together with behavioral objectives and information on the timeline and the materials and equipment needed for the unit. Plans are then presented for four lessons, which require a minimum of seven 50-minute class periods: (1) Introduction to the Telecommunications Unit; (2) Data Transmission; (3) Electronic Bulletin Board System Procedures and Operations; and (4) Types of Networks. Each lesson includes a set of objectives for the lesson; a 10- to 15-item vocabulary list; an estimated time line; an overview of materials preparation; the content to be presented; a detailed description of classroom procedures; suggestions for additional classroom activities; and student worksheets. A glossary containing 59 key phrases is appended as well as a printout of messages produced by the public domain electronic bulletin board; lists of online networks (including connect and subscription costs) and communications software; masters for overhead transparencies designed for use in presenting the content of the lessons; and vocabulary word puzzles.

ED309496
School Computer Networks: Electronic Publishing and Legal Liability in the Public School.
Dowdy, Earl
Aug 1989, 31p. Paper presented at the Annual Meeting of the Association for Education in Journalism and Mass Communication (72nd, Washington, DC, August 10-13, 1989).
EDRS Price: MF01/PC02 plus postage.
Document Type: Conference Paper (150); Evaluative Report (142)
Major Descriptors: *Computer Networks; *Electronic Publishing; *Legal Responsibility; *Public Schools; *Student Publications

This paper explores questions of institutional responsibility and the potential for legal liability falling on public school institutions as a result of their involvement with computer-networking technology. First, the paper examines the doctrine of sovereign immunity to understand the limits of government responsibility for damages in this context. Second, the separate liability of school officials and employees is discussed. Third, ways of using computer networks are related to questions of legal liability, with particular focus on the issue of electronic publication of defamatory statements. Fourth, the paper addresses how school authorities might balance protection against liability with the constitutional rights of students. Lastly, some guidelines are proposed for the prudent control of school computer networks. Seventy-two notes are included.

ED320033
Introduction to Telecommunications.
Flanagan, Joan
Mid-America Vocational Curriculum Consortium, Stillwater, OK.
1988, 114p.
Available From: Mid-America Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. 801501: $9.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computers; *Computer Software; *Telecommunications

These materials for a five-unit course were developed to introduce secondary and postsecondary students to the telecommunications process and its impact on society. Units cover the following topics: orientation to telecommunications; telecommunications hardware; telecommunications software; methods of transmission; and applications. The first section is designed to show teachers how to use the materials and includes an explanation of instructional elements, an instructional task analysis for each unit, and a glossary. Twenty-two references, a list of 15 supplementary materials, including computer software, and a resource list also appear. The instructional elements for the units include objectives, suggested activities, information sheets. transparency masters, assignment sheets, handout sheets, tests, and test answers. Some elements, such as the information sheets, include diagrams and line drawings.

ED310784
Guided Practice: Use of Low-Cost Networking.
Gersten, Russell; And Others
Mar 1989, 35p. Paper presented at the Annual Conference of the American Educational Research Association (San Francisco, CA, March 29-April 4, 1989).
EDRS Price: MF01/PC02 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Computer Networks; *Intermode Differences; *Reading Comprehension; *Remedial Reading

This study investigated the effectiveness of the use of computer networking in providing guided practice in teaching reading comprehension to middle school students (grades 6-8) in remedial reading class. (Guided practice is defined as the phase of instruction immediately following the presentation of a new skill, concept, or strategy, in which the teacher assesses student comprehension of the new skill in order to enhance student achievement in both whole class and small group instruction.) Teachers used TeacherNet, a low-cost prototypic computer networking device that plugs several student keyboards into the communication board of a single personal computer to determine which segments of a curriculum require additional remediation. The reading curriculum consisted of two strands—QAR2 (a meta-cognitive strategy based on the work of Raphael) and rule-based inferences (a strategy for drawing inferences from material implicit in the text). Results indicated a significant effect for rule-based inferences, but not for QAR2. The effect was maintained over a 2-week period. Results indicate the immediacy of feedback was more useful in teaching the abstract and demanding rule-based inference curriculum than the easier, more familiar QAR2 curricula. Students responded positively to the immediacy of feedback and the group accountability involved in the guided practice. A review of prior research introduces the report and the appendix contains copies of sample reading passages and their related questions. (33 references)

ED321384
The Effect of the Computer Revolution on Educational Delivery Systems.
Graczyk, Sandra L.
[Jan 1988], 23p.
EDRS Price: MF01/PC01 plus postage.

BEST COPY AVAILABLE

Document Type: Review Literature (070); Position Paper (120)
Major Descriptors: *Computers; *Computer Uses in Education; *Delivery Systems; *Microcomputers

The reasons for schools' lack of leadership in using microcomputers for technological diffusion are explored in this article. General systems theory is used to examine the effects of the computer revolution on political, social, economic, and educational systems. Selected characteristics of schools and computers are offered as possible explanations for education's reactions to the computer revolution. Two future scenarios are discussed: resistance to change, which results in increased irrelevance of educational institutions to the external environment and their eventual decline; or adaptation, which is accomplished by rational planning for computer system selection and implementation. An extended bibliography is included.

ED313025
Electronic Learning.
Hale, Robert; And Others
Connecticut Association of Secondary Schools, Hamden.
Sep 1988, 26p.
EDRS Price: MF01/PC02 plus postage.
Document Type: Project Description (141); Non-Classroom Material (055)
Major Descriptors: *Databases; *Distance Education; *Information Retrieval; *Online Searching; *Telecommunications

The Connecticut Association of Secondary Schools has worked with the Elementary and Middle School Principals Association of Connecticut, the State Department of Education, and the Connecticut Principals' Academy to bring to the awareness of administrators throughout the state new developments in electronics technology that have significance for educators. Four efforts to offer one-day conferences have failed because of insufficient enrollment. This two-part monograph presents much of the information that the conference was intended to present. Focusing on distance education, the first part provides background information on the delivery method and descriptions of distance education projects throughout the state, including the application of specific technologies, i.e., interactive video, interactive audio, and interactive television. The second part, which addresses online data retrieval skills, focuses on four different online services that are currently in use in some Connecticut schools: Dow Jones News Service, DIALOG, WILSEARCH, and EINSTEIN. Names and addresses of contact persons in selected schools and addresses of the online database service companies are appended.

ED321733
Computer-Mediated Communications Support for Teacher Collaborations: Researching New Contexts for Both Learning and Teaching.
Hunter, Beverly
16 Apr 1990, 9p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Position Paper (120); Conference Paper (150)
Major Descriptors: *Computer Networks; *Cooperative Planning; *Social Networks; *Teachers

After providing examples of the use of computer-mediated communications networks such as Kids Network, Project INSITE, and Project Earth Lab to create real-world contexts for student learning, this paper notes that teacher learning and collaboration has been a secondary issue. It is argued that the urgency of such national efforts as school restructuring and pedagogical reform, combined with increasing accessibility of computer-based communications, creates both the need and the opportunity for research on teacher collaborations via networks. Theoretical and practical approaches to this research are outlined. The most effective networks, it is noted, are likely to be those that are designed to support a shared vision of the collaborative social and organizational reality desired by and for teachers and educational communities. (20 references)

ED316203
ACOT Classroom Networks: Today and Tomorrow. ACOT Report #5.
Knapp, Linda
Apple Computer, Inc., Cupertino, CA. 1989
11p.; Apple Classrooms of Tomorrow Perspectives. For additional reports in this series, see ED 316 199-202.
EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Networks; *Computer Software; *Cooperative Learning

The Apple Classrooms of Tomorrow (ACOT) research project provides classroom sites with equipment, ongoing support, and training, enabling educators to discover the potential of networked learning environments. ACOT networks link together technology from Apple IIe computers and Image Writer printers, to Macintosh II systems, synthesizers, laserdisc players, scanners, and LaserWriter printers. Curriculums include subjects from reading, writing, and arithmetic to trigonometry, and networked software ranges from drill and practice to word processing and curriculum management tools. Teaching approaches that utilize the network span from directing students to work through electronic workbooks, to coaching them as they create entire curriculum units. Three kinds of network-supported learning environments can be utilized: self-paced, project-based, and knowledge-building. The first two reflect the current activity of ACOT classrooms, while the third predicts future ACOT activities. Two current research and development projects are described which demonstrate the use and value of electronic networks for building knowledge in a collaborative environment.

ED319376

Local and Long Distance Computer Networking for Science Classrooms. Technical Report No. 43.

Newman, Denis

Bank Street College of Education, New York, NY. Center for Children and Technology.

Feb 1987, 11p.

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available From: Center for Children and Technology, Bank Street College of Education, 610 W. 112th Street, New York, NY 10025.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Project Description (141); Research Report (143)

Major Descriptors: *Elementary School Science; *Local Area Networks; *Microcomputers; *Programming; *Telecommunications

This report describes Earth Lab, a project which is demonstrating new ways of using computers for upper-elementary and middle-school science instruction, and finding ways to integrate local-area and telecommunications networks. The discussion covers software, classroom activities, formative research on communications networks, and integration of local and long distance networks. A list of nine references concludes the report.

ED318132

The Politics of Technology Utilization: From Microcomputers to Distance Learning. Trends & Issues Series, Number 3. A Series of Papers Highlighting Recent Developments in Research and Practice in Educational Management.

Piele, Philip K.

ERIC Clearinghouse on Educational Management, Eugene, OR.

Oct 1989, 21p.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

Available From: Publication Sales, ERIC Clearinghouse on Educational Management, University of Oregon, 1787 Agate Street, Eugene, OR 97403 ($6.00 plus $2.50 shipping and handling).

EDRS Price: MF01/PC01 plus postage.

Document Type: ERIC Product (071); Evaluative Report (142); Position Paper (120)

Major Descriptors: *Computer Uses in Education; *Distance Education; *Microcomputers; *Political Issues; *Politics of Education; *Telecommunications

The external politics of technology utilization in schools involving local, state, and federal levels of government is the central focus of this paper. Interest group politics are also examined, especially as practiced at the state level by professional associations representing teachers, administrators, and school board members. The first chapter examines the failure of the microcomputer to transform the traditional role of the teacher in the schools and then assesses the promise of interactive distance learning to do so. The primary conclusion reached is that only technologies like interactive distance learning, with its capacity to offer an educationally viable and cost-effective alternative to the classroom teacher, will have a real impact on schools. The second chapter describes the technology of interactive distance learning and state-level providers of distance learning services as well as the federal role in distance learning. The third chapter analyzes, at each of the three educational governance levels, political and legal issues that have been raised by distance learning. In the years ahead teacher unions may find themselves in some difficult political battles either to prevent school districts from obtaining and expanding interactive distance learning instruction or to compensate teachers for mastering its use. (24 references)

ED316249
Use of Local Area Networks in Schools. ERIC Digest.
Reinhold, Fran
ERIC Clearinghouse on Information Resources, Syracuse, N.Y.
Dec 1989 4p. Condensed version of an article "Educators Explore the Lay of LAN," that appeared in *Electronic Learning*, 8 (5), March 1989.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available From: ERIC Clearinghouse on Information Resources, Syracuse University, 030 Huntington Hall, Syracuse, NY 13244-2340 (free while supply lasts).
EDRS Price: MF01/PC01 plus postage.
Document Type: ERIC Product (071)
Major Descriptors: *Computer Assisted Instruction; *Local Area Networks; *School Districts

The current status and apparent trends of local area networks (LANs) in school districts are explored in this short report. Results of a 1987-88 Quality Education Data survey are cited, indicating that 64% of 173 of the largest school districts in the country were already networking and 36% intended to be networking by 1990. The advantages of networks are briefly summarized, and a description of how LANs work is provided. Availability of network software in the recent past and at present is discussed, as is the response of software publishers to the increased demand for network software. Two case studies are presented. The first profiles the Island Park School District in New York, where three LAN laboratories are used for: (1) teaching basic skills to kindergarten through third grade pupils; (2) instructing fourth through eighth grade students in skills reinforcement and word processing; and (3) offering creative applications in the library. The second case study reports on progress made in the 28,000-student Plano Texas School District, whose goal is to have a network that will channel everything a student does into one core electronic gradebook by 1992. Eight tips for buying a LAN are listed, together with six sources to consult for further information.

ED317822
Exploring Communication Technology.
Wood, Jimmie; Kellum, Mary
Mid-America Vocational Curriculum Consortium, Stillwater, OK.
1987, 275p. For related documents, see ED 317 818-821. Document contains colored paper.
Available From: Mid-America Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. 301301: $10.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Communication Skills; *Design; *Drafting; *Photography; *Reprography; *Telecommunications

These teacher's materials for a seven-unit course were developed to help students develop technological literacy, career exploration, and problem-solving skills relative to the communication industries. The seven units are on an introduction to communication, verbal communication, design and sketching, drafting, graphic reproduction, photography, and electronic communication. The first section is designed to teach teachers how to use the materials and includes an explanation of instructional elements, an instructional-task analysis for each unit, and a list of 28 references. The instructional elements for the units include objectives, suggested activities, information sheets, transparency masters, assignment sheets, job sheets, tests, and test answers. Some elements, such as the information sheets, include photographs, diagrams, and line drawings. (CML)

Computer Equity

ED311873
Computer Literacy and Social Stratification. Interactive Technology Laboratory Report #9.
Mehan, Hugh
California University, San Diego, La Jolla. Center for Human Information Processing.
Nov 1985, 17p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Computer Literacy; *Equal Education; *Microcomputers; *Social Stratification

As schools acquire and use computers for educational purposes, two major questions arise: (1) whether students from different strata of society will obtain equal access to computers, and (2) whether students from different strata of society will be taught similar or different uses of the computer. To explore the relationship between the characteristics of schools, the students they educate, and students' access to computers, observations of computer use were conducted in 21 classrooms in five Southern California School Districts. A very strong relationship was found between the type of students who are being educated using computers and the type of instruction that is being presented to them. Boys and girls had differential access to computers, especially in secondary schools. (In elementary schools with central lab facilities, girls and boys had equal access.) Ethnic minority and lower class students received a different kind of instruction than did their white middle class and ethnic majority contemporaries. White middle class students received instruction which encouraged learned initiative (programming and problem solving). Lower class and ethnic minority students received instruction which maintained control of learning in the computer (computer aided drill and practice). Basic computer literacy courses emphasize programming, but increasingly employers are seeking individuals with skills in applications such as word processing, spreadsheet analysis, and data systems management. Typically, only students who progress to advanced courses learn these skills. Ethnic minorities are often excluded. Serious consideration of these policies is necessary to avoid a system of stratification based on access to information technology. (25 references)

ED314658
Sex Role Identity, Attributional Style, and Attitudes toward Computers.
Nelson, Lori J.; Cooper, Joel
31 Mar 1989, 7p. Paper presented at the Annual Meeting of the Eastern Psychological Association (Boston, MA, March 30-April 2, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Attribution Theory; *Microcomputers; *Sex Differences; *Sex Role; *Sexual Identity; *Student Attitudes

This study was conducted to examine three explanations for gender differences in computer use and attitudes: (1) sex-typed females avoid computers if they perceive computers to be a male domain; (2) sex differences in video game use mediate sex differences in computer use; and (3) sex differences in attributional style mediate sex differences in computer use and perceived abilities with computers. Subjects were 127 fifth graders who completed questionnaires assessing attributional style, sex role identity, and computer and video game experience. Several weeks later, subjects used either a frustrating or non-frustrating computer program to solve anagrams, evaluated their performance, and made attributions for their performance. Also assessed were anxiety, attitudes toward the program, perceptions of anagrams, perceptions of one's own ability with computers, expectations for future performance, attitudes toward using computers in the future, and performance on a second computer program. The findings revealed that both boys and girls were enthusiastic about using computers and had positive attitudes toward computers, yet girls used computers less often than boys did, and girls felt that they had less ability with computers than did boys. None of the three possible explanations for sex differences in computer use and attitudes could adequately account for the results.

ED316218
Equity Issues in Educational Computer Use.
Sutton, Rosemary
Sep 1989, 26p. Paper presented at the New Zealand Computers in Education Society (New Plymouth, New Zealand, September 1989).
EDRS Price: MF01/PC02 plus postage.
Document Type: Review Literature (070); Position Paper (120); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Educationally Disadvantaged; *Equal Education

This paper focuses on gender, ethnic, and social class differences in attitudes toward computers, access to computers, and use of computers in educational settings. Background on equity concerns in the late 1980s is provided, and reasons why this is currently considered an important issue are discussed. Recent data on differences in access and type of use for children of different ethnic origins, social class backgrounds, and gender are presented. Research on the consequences of these inequities is also considered. The following intervention programs and strategies that educators can use to alleviate inequities in educational computer use are summarized: (1) awareness of equity issues; (2) equitable access and distribution of resources among schools, within schools, and within classrooms; (3) monitoring of the type of computer use of different groups; (4) selection of unbiased classroom materials; (5)

use of minority and role model panels; (6) cooperative learning environments; and (7) use of the Logo programing language. (52 references)

ED319660
Girls, Computers, and Amber Waves of Grain: Computer Equity Programming for Rural Teachers.
Thurston, Linda P.
1990, 18p. Paper presented at the Annual Conference of the National Women's Studies Association (11th, Towson, MD, June 14-18, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Inservice Teacher Education; *Instructional Development; *Nondiscriminatory Education; *Rural Education; *Womens Studies

Research has revealed that more males than females participate in computer learning environments. Rural young women in home and school are conditioned to accept outdated role definitions and may be limited in career and life choices by restricted access to technology and their perception of the female role in technology. In 1988-89, a year long in-service training program was developed for Kansas teachers to enable them to provide gender equitable, quality computer education in upper elementary and middle school classrooms. Designed primarily for schools in rural areas, the classroom segment was divided into two sections: a primary computer content section using Logo Writer, database building, lesson plans involving software, the computer language BASIC, and telecommunications software; the gender equity training section utilized the book, "Neuter Computer" (Sanders and Stone, 1986). An evaluation was conducted to assess the effects of the program on skills and attitudes of teachers and students. The results showed teachers had more equitable attitudes and female students showed increased use and enjoyment of the computer.

Counseling and Guidance

ED318435
Providing Practical Applications of Computer Technology for Fifth Grade Students in Career Awareness Laboratories.
Pereno, Joan S.
1989, 113p. Ed.D. Practicum, Nova University.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Practicum Paper (043); Test, Questionnaire (160)
Major Descriptors: *Career Awareness; *Computer Assisted Instruction; *Computer Literacy; *Student Attitudes

This practicum addressed the problem of providing practical computer application experiences to fifth grade students as they relate to real life work situations. The primary goal was to have students become cognizant of computer functions within the work setting as contrasted with viewing computer activities as instruments used for games or academic drill. Two hundred and seventy students in six schools participated in the practicum implementation. They performed work-related activities on computers in the career areas of cashier, teacher, secretary, receptionist, fingerprint technician, and restaurant manager. A survey identifying jobs and computer processes was given as a pre- and posttest. Responses were elicited from students to an open-ended questionnaire concerning computers upon completion of the activities provided in the practicum. The results were positive; 267 students completed four or more computer activities used in the implementation and 259 students showed improvement in the recognition of jobs and computer processes. The open-ended questionnaire reflected positive attitudes toward computers on behalf of the total group. All objectives of the practicum were successfully met and the final results exceeded the anticipated practicum goals. (16 references)

ED315701
Counseling and Guidance Software. Highlights: An ERIC/CAPS Digest.
Sprik, Jeanette
ERIC Clearinghouse on Counseling and Personnel Services, Ann Arbor, MI.
1990, 3p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available from: ERIC/CAPS, 2108 School of Education, University of Michigan, Ann Arbor, MI 48109-1259.
EDRS Price: MF01/PC01 plus postage.

Document Type: ERIC Product (071)
Major Descriptors: *Computer Software; *Computer Software Reviews; *Counseling; *Counseling Services

This digest describes the "Counseling Software Guide" (Walz and Bleuer, 1989). It summarizes the contents of the guide: (1) general information about the use of computers in counseling; (2) practical guidelines on what to look for in software; (3) an overview of trends and developments in availability and use of software; (4) an overview of the range of software programs available on a particular topic; and (5) information on specific software programs.

ED315690
A Technological World.
Walz, Garry R.; And Others
American School Counselor Association. Alexandria, VA.; ERIC Clearinghouse on Counseling and Personnel Services, Ann Arbor, MI.
1990, 43p. In: *Elementary School Counseling in a Changing World*, see ED 315 684.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available from: ERIC/CAPS, 2108 School of Education, University of Michigan, Ann Arbor, MI 48109-1259.
EDRS Price: MF01/PC02 plus postage.
Document Type: ERIC Product (071)
Major Descriptors: *Computer Uses in Education; *Elementary Schools; *School Counseling; *School Counselors; *Technology

This sixth chapter in *Elementary School Counseling in a Changing World* contains four journal articles which focus on technological advances. The articles help elementary school counselors explore their own feelings about technology and learn how technology may be used as a counseling tool. "Role of the Counselor with Computers" by Garry Walz notes that the computer has the potential to affect significantly the role of the counselor and examines changing counselor roles in light of recent computer innovations. "High Touch and High Technology: The Marriage That Must Succeed" by JoAnn Harris-Bowlsbey assists counselor educators, supervisors, and practicing counselors to determine conditions under which high technology alone, high touch alone, or the purposeful combination of the two may be the preferred mode of treatment. "Counselor Computer Competencies" by Don Dinkmeyer, Jr. and Jon Carlson suggests competencies the counselor needs to acquire and provides an introduction to computers and their uses. "Getting Comfortable with Computers" by Richard Nelson and Gerald Krockover lists the benefits of different computer uses for counselors. The chapter concludes with a set of issues for elementary school counselors to consider about a technological world.

Interactive Video

ED309749
What Makes Good IV?
Copeland, Peter
Dec 1988, 8p. Paper presented at the Annual Interactive '88 Conference (Brighton, England, December 6-8, 1988).
EDRS Price: MF01/PC01 plus postage.
Document Type: Position Paper (120); Conference Paper (150)
Major Descriptors: *Courseware; *Evaluation Criteria; *Interactive Video

The various criteria upon which interactive video courseware can be judged are outlined. The criteria relate to the critical areas of program usage, content, interactivity, production, presentation, design, and programming. The mnemonic HICUPPP is introduced to describe seven key areas that categorize criteria which can be used to evaluate interactive video programs: (1) How to use the program; (2) Information about the program; (3) Content of the program; (4) User involvement, control, and support; (5) Presentation; (6) Product design; and (7) Programming. Each of these criteria is examined in some detail and their relative importance is discussed. (GL)

ED315064
Interactive Videodisc: An Emerging Technology for Educators. ERIC Digest.
Grabowski, Barbara L.
ERIC Clearinghouse on Information Resources, Syracuse, NY.
Dec 1989, 4p.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

Available from: ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, NY 13244-2340 (free while supply lasts).

EDRS Price: MF01/PC01 plus postage.

Document Type: ERIC Product (071)

Major Descriptors: *Computer Assisted Instruction; *Information Storage; *Interactive Video; *Learning Processes; *Videodisks

Interactive video can be a very complex learning system, or it can be a simple tool for teachers to use to enhance their instruction. The term has been used broadly in the literature and includes three major aspects: (1) interactive video as storage; (2) interactive video as hardware; and (3) interactive video as learning concept. This digest describes each of these concepts in detail. The first section discusses the information storage and retrieval capacities of both Constant Angular Velocity (CAV) and Constant Linear Velocity (CLV) videodisks. A scheme for classifying interactive video hardware by "levels of intelligence" (based on a three-level scheme developed by the Nebraska Design/Production Group) is outlined in the second section. Emphasizing learner interaction with visuals, the third section focuses on the advantages of interactive video over other computer-based systems for instructional purposes. (10 references)

ED321762

Research on Teachers' Characteristics in Relation to a Cognitive-Learning Based Interactive Videodisc System.

Grant, Martha B.; Cambre, Marjorie A.

19 Apr 1990, 14p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Interactive Video; *Teacher Characteristics; *Teaching Styles; *Technology Transfer

This pilot study explored teacher characteristics as they influenced the use of "Exploring Nepal," a cognitive learning-based interactive video system for middle school students. Specifically, the study sought to narrow down a variety of teacher characteristics that may influence the quality of their interaction with the videodisk. The initial list included psychological types (as measured by the Meyers-Briggs Type Indicator), number of years teaching experience, preferred teaching strategies, preferred learning mode, concerns with technology, and teaching philosophy. Five social studies teachers completed the Meyers-Briggs Type Indicator (Form G, self-scoring) and a background questionnaire prior to interacting with the videodisk. An electronic tracker monitored each participant's progress through the program. Follow-up measures consisted of a questionnaire and a structured interview asking about the projected use of the videodisk in the classroom, suggested implementation activities, and teacher perceptions of its potential. Findings indicate that the salient characteristics influencing teachers' interaction with "Exploring Nepal" are psychological types and previous experience with media (videocassette recorders in general and Macintosh computers in particular). Four dependent variables—amount of detail, linearity of selections, use of elaborative functions, and use of technical controls—were identified and quantified by the tracking mechanism and were used to refine the research questions. (11 references)

ED309736

Feasibility of an Integrated Expert Video Authoring Workstation for Low-Cost Teacher Produced CBI. SBIR Phase I: Final Report.

IntelliSys, Inc., Syracuse, NY.

28 Feb 1989, 32p.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Educational Facilities; *Interactive Video; *Mainstreaming; *Teacher Developed Materials

This was Phase I of a three-phased project. This phase of the project investigated the feasibility of a computer-based instruction (CBI) workstation, designed for use by teachers of handicapped students within a school structure. This station is to have as a major feature the ability to produce in-house full-motion video using one of the presently-available video recording devices, such as WORM (Write Once, Read Many) drives, LaserFilm, or interactive video tape. A systematic evaluation of video storage devices was carried out, and resulted in the identification of several acceptable devices around which

such a workstation could be designed. Studies of user needs for characteristics of authoring and delivery systems were also undertaken. It was found that expert systems should be incorporated into the design of the workstation to aid the teacher in designing CBI, and also to help in producing the instructional lessons. It was proposed that a new type of CBI be developed to enable the teacher to more easily design lessons structured in ways similar to the way the teacher would deliver the lesson in person.

ED321761
Meta-Analysis of Interactive Video Instruction: A 10 Year Review of Achievement Effects.
McNeil, Barbara J.; Nelson, Karyn R.
24 May 1990, 68p.
EDRS Price: MF01/PC03 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Achievement; *Group Instruction; *Instructional Effectiveness; *Interactive Video; *Learner Controlled Instruction

Sixty-three studies which investigated cognitive achievement effects following interactive video (IV) instruction were integrated through a meta-analysis technique. Overall, mean achievement effect for IV was .530 (corrected for outliers), indicating that IV is an effective form of instruction. The effect is similar to that of computer-assisted instruction. A test of homogeneity on effect sizes revealed that they were not homogeneous. Failure to account for more variance in the models by independent variables analyzed in this study indicates that cognitive achievement from IV is influenced by a myriad of variables (including the nature of the instructional content, environmental factors, instructional methods, features of the learning materials, and characteristics of the learner) that are difficult or impossible to account for in a single meta-analysis. Results revealed that differences in program effectiveness favoring group instruction may be explained by factors such as decisions made by the teacher relative to the amount of practice, the extent and kind of feedback, and the nature of remediation procedures. Moreover, program-controlled IV appeared to be more effective than learner-controlled IV. The 63 studies included in the analysis are cited, and data are presented in six tables. (41 references)

ED316214
The Videodisc: A Multi-Purpose Instructional Tool.
Price, Robert V.
[1988], 4p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Assisted Instruction; *Cost Effectiveness; *Information Retrieval; *Information Storage; *Interactive Video; *Videodisks

This discussion of the laser videodisk begins by noting that it is an extremely high density visual storage medium that can supply instructors with vast visual warehouses to supplement instruction, whether through conventional group presentations or via individualized computer assisted instruction. Major features of the medium are then described with an emphasis on: (1) its cost-effectiveness; (2) its capacity for easy random access to information; (3) its capacity to handle motion video in slow, normal, and fast modes; (4) its capacity to utilize two audio tracks for high quality stereo music reproduction, dual language narration, or two different instructional tracks; (5) its durability as compared to conventional media; and (6) its ability to complement computer assisted instruction. Projected future applications of the medium are outlined. (9 references)

ED319375
Children's Use of the Unique Features of Interactive Videodiscs. Technical Report No. 42.
Tally, William J.; Char, Cynthia
Bank Street College of Education, New York, NY. Center for Children and Technology.
2 Feb 87, 22p.
Available from Center for Children and Technology, Bank Street College of Education, 610 W. 112th Street, New York, NY 10025.
Document Type: Reports - Research (143)
EDRS Price: MF01 plus postage. PC not available from EDRS.
Major Descriptors: *Computer Assisted Instruction; *Interactive Video; *Learner Controlled Instruction; *Videodisks

This study examined the way children learn about and use the novel features of videodiscs. Nine 9- and 10-year-old students in a progressive private school in New York City participated in the study. None had prior experience with videodisc technology. The two videodiscs which served as test materials—"The First National Kidisc" and "Fun and Games"—were selected because they encourage

use of the special video and audio features of videodiscs. Subjects worked in pairs for two 45-minute sessions. Sessions were observed by a researcher who took notes on the children's behavior and comments. Results are reported in three sections: (1) initial learning of the disc options, the role of disc-based instructions and prompts in learning, and technical aspects of the hardware that were impediments to learning; (2) use of audio options and use of visual options in relation to several general goals, such navigating around the disc and playing with the speed and direction of images; and (3) use of disc options to manipulate the presentation in accordance with children's interests and playing styles. It is concluded that children are able to handle videodisc programming that leaves open the opportunity for exploration and self-motivate learning. (7 references)

ED311887
Videodisc Technology.
Ullmer, Eldon J.
National Library of Medicine (DHHS/NIH), Bethesda, MD.
Jan 1989, 26p. LISTER HILL Monograph.
EDRS Price: MF01/PC02 plus postage.
Document Type: Review Literature (070); Book-Product Review (072)
Major Descriptors: *Computer System Design; *Interactive Video; *Media Selection; *Optical Disks

Developed as a service to the health sciences community, this monograph is intended as an introduction to interactive videodisk technology. It describes both videodisk and compact disk technologies and different videodisk player formats, and discusses some of the major factors that educators considering videodisk adoption should consider. The first chapter introduces videodisk technology and describes its various formats, including electrical capacitance videodisks, optical laser videodisks, videodisk display and interactive features, audio and interactive videodisks, and recordable videodisk technology. The second chapter describes compact disk systems, including compact disk-digital audio (CA-DA), compact disk-video (CD-V), compact disk-read only memory (CD-ROM), compact-disk interactive (CD-I), digital video interactive (DVI), and recordable (WORM) and erasable compact disks (still under development). The third chapter outlines videodisk system selection factors and includes information on choosing a technology format, comparing production processes, authoring tools, and integrated interactive videodisk systems. The final chapter briefly reviews the application of videodisk technology in the health professions. Six appendixes provide lists of selected information sources on videodisk technology, including associations, videodisk and general educational technology periodicals, books, industry guides, and training resource organizations. (14 references)

ED319377
The *Palenque* Optical Disc Prototype: Design of Multimedia Experiences for Education and Entertainment in a Nontraditional Learning Context. Technical Report No. 44.
Wilson, Kathleen S.
Bank Street College of Education, New York, NY. Center for Children and Technology.
May 1987, 19p. Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
Available from: Center for Children and Technology, Bank Street College of Education, 610 W. 112th Street, New York, NY 10025.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Project Description (141); Conference Paper (150)
Major Descriptors: *Instructional Design; *Material Development; *Multimedia Instruction; *Optical Disks; *Videodisks

This report describes *Palenque*, an interactive, multimedia, optical disc research prototype developed for home use by 8- to 14-year-old children and their families. The report begins by providing an overview of the project, which is followed by a discussion of the target audience and context for use of the videodisc. A discussion of learning philosophy covers the roots of traditional instructional design, the substitution of less traditional roots for the design of elements of the *Palenque* discovery learning model how the design fosters incidental learning, and the creation of a flexible environment that allows for extended sessions and repeatability. The nature of the medium is then addressed—the unique features of the optical disc medium, inspiration from other projects, and features of the DVI (Digital Video Interactive) Development System. Design elements of materials that are incorporated in *Palenque* are described, including linear television narratives, interactive narratives, simulations, interactive games, multimedia databases, and interactive books. The report concludes with discussions of the concurrent process of design and development as research and the implications of future design efforts. (19 references)

ED319391

The *Palenque* Project: A Process of Design and Development as Research in the Evolution of an Optical Disc Prototype for Children. Technical Report No. 47.

Wilson, Kathleen S.; Tally, William J.

Bank Street College of Education, New York, NY. Center for Children and Technology.

Dec 1987, 15p. For a related report, see ED 319 377.

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Evaluative Report (142)

Major Descriptors: *Formative Evaluation; *Instructional Design; *Instructional Development; *Multimedia Instruction; *Optical Disks; *Videodisks

This report describes the *Palenque* Project, a highly interactive, multimedia, optical disc research prototype which was developed for home use and tested by observing 25 children in the 9 to 14 year age range and their families and 8 12-year-olds in pairs. It is noted that the project was intended to create a rich, multimedia database environment for children and their families that would pique their curiosity and foster self-guided exploration, information seeking, and decision making as they explore a Mayan ruin in the Yucatan called Palenque. Following an overview of the project and a description of the design and development team, the report provides descriptions of: (1) the components of the prototype design; (2) the target audience and context for use; and (3) the two phases of design, development, and research which produced the preliminary and final prototypes. It is noted that the research and development project involved concurrent and iterative processes of design, research, production, and programming over the course of a 2-year time frame. It is further noted that since the final goal was to produce research prototypes rather than products, collective research efforts in the development of design conventions that reflected chosen pedagogical biases in content and theme development, interface design, production techniques, and technical implementation, were the essence of the project rather than by-products or activities conducted after product completion. (8 references)

Keyboarding

ED312444

What Research Says about Keyboarding Skills and Computer Anxiety.

Artwohl, Mary Jane

1989, 15p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070)

Major Descriptors: *Anxiety; *Computer Literacy; *Keyboarding (Data Entry); *Microcomputers; *Typewriting

A literature search identified 14 studies that were examined concerning keyboarding and computer anxiety. Although research on the relationship between keyboarding skills and computer anxiety is scarce, studies are being conducted to measure the effects of basic keyboarding skills on increased productivity. In addition, research is being performed on the effects of anxiety and its remediation through training. The research reviewed indicates that keyboarding is a basic skill related to the efficient use of computers. Familiarity with this skill, in turn, stimulates interest and enables concentration to be focused on the task to be accomplished, thereby increasing awareness and understanding about computers and decreasing anxiety. One study found that although keyboarding skills did not lead to conceptual understanding of computers, typists were significantly more likely to understand future office computer use than nontypists. In contrast to the lack of literature on formal research relating keyboarding skill to lessening of computer anxiety is the availability of articles stressing the benefits of implementing a program in basic keyboarding skills as a prerequisite to computer use, but these benefits are not quantified. (32 references)

ED313002

Comparing Children's Typing Skills Using the Dvorak and QWERTY Keyboards on a Microcomputer.

Joyce, Bonnie G.; Moxley, Roy A.

[1989], 21p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Intermode Differences; *Keyboarding (Data Entry); *Microcomputers; *Young Children

This study compared the typing efficiency of four young children (5 to 6 years of age) who were novice typists on the Dvork and QWERTY keyboards. A copying program on an Apple IIc microcomputer functioned as the training instrument. Although the children did not acquire proficient touch typing skills, they did type accurate responses faster, keep their hands positioned on the home row when they began typing, and show some conditioning to key locations when using the Dvorak keyboard. While the children's fingering was often inconsistent and they continued to glance at the keyboard for confirmation of key locations, their acquisition of touch typing skills would probably have been more extensive had they stayed with the same keyboard throughout instead of changing from the QWERTY to the Dvorak version. Although there is some evidence that children as young as 6 years can acquire touch typing skills, it is unclear what the recommended procedures should be for introducing young children to keyboard fingering. Additional research in this area acquires increasing importance as more young children use microcomputer keyboards. Twelve references, 2 tables, and 1 figure are included.

Logo Programming Language

ED318443
LOGO K-12.
New York City Board of Education, Brooklyn, NY.
1986, 443p.
Available from: New York City Board of Education, Curriculum Unit, P.S. 206, Room 310, Neck Road and East 22nd Street, Brooklyn, NY 11229.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Literacy; *Computer Science Education; *Microcomputers; *Programing

This curriculum guide presents lessons in the use of the LOGO programing language for students at all grade levels. The first section contains 19 lessons for the early childhood level, covering topics such as how computers work, directionality and moving the turtle, and creating designs. The 76 lessons for grades K-6 that are described in the next section cover such topics as the history and uses of computers, keyboarding, following directions, moving the turtle, LOGO commands, editing in LOGO, creating designs, and creating and moving sprites. The third section presents 70 lessons for grades 7-12 on topics such as applications of computers, word processing, LOGO commands, recursive programming, using variables, creating designs, LOGO programs, writing with LOGO, LOGO sounds and music, random procedures, and function machines. Performance objectives, vocabulary, motivation, aim, development, application, summary, and exercises are included for most lessons. The appendixes include a discussion of computers and special education students; and a glossary of computer terms.

ED319371
Logo Programming and Problem Solving. Technical Report No. 12.
Pea, Roy D.
Bank Street College of Education, New York, NY. Center for Children and Technology.
Apr 1983, 10p. Paper presented at an American Educational Research Association Symposium (Montreal, Canada, April 1983) as "Chameleon in the Classroom: Developing Roles for Computers."
Sponsoring Agency: Spencer Foundation, Chicago, IL.
EDRS Price: MF01/PC01 plus postage.
Document Type: Position Paper (120); Research Report (143); Conference Paper (150)
Major Descriptors: *Cognitive Processes; *Computer Science Education; *Programing

This paper discusses five points related to developmental research on children learning to do Logo programming: (1) systematic developmental research documenting what children are learning as they learn to program is necessary; (2) Logo is cognitively complex beyond its early steps and difficult to learn without instructional guidance; (3) the pedagogical fantasy that Logo can serve as a stand-alone center in classrooms for learning programming and thinking skills does not work; (4) after a year of programming in Logo, following the discovery-learning pedagogy, a group of children did not display greater planning skills than a matched group who did not do Logo programming; and (5) it is necesary to develop an instructional science for teaching programming and to rethink the educational goals programming is meant to fill. Findings of three studies on children learning to program and the cognitive outcomes of such programming are reported: the first was a study of the level of programming expertise children had developed by the year's end; the second consisted of systematic probes of the depth of understanding of programming concepts in studies with individual children; and the last asked whether

children doing programming developed planning skills that they spontaneously transferred beyond programming. (19 references)

ED309762

Programming Objects To Think With: Logo and the Teaching and Learning of Problem Solving.

Swan, Karen

Mar 1989, 35p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 25-30, 1989).

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Instructional Design; *Intermode Differences; *Problem Solving; *Programing; *Skill Development

Unfortunately, much of the research devoted to Logo and problem solving has not supported the claim that Logo provides an environment in which children will develop problem solving skills, but the literature suggests that direct instruction and mediated Logo programming practice can result in the acquisition and transfer of certain problem solving abilities. The research reported in this paper was designed to test such an hypothesis by differentiating between interventions combining direct instruction and mediated practice and discovery learning approaches, and with assessing the importance of programming within that model. Subjects were 100 students in the fourth through the sixth grades who had all had at least one year (30 hours) of prior experience programming in Logo. All subjects were pretested on their ability to solve problems requiring the use of each of the five problem solving strategies under investigation, and randomly assigned by grade to one of three treatment conditions—a Logo graphics condition, a cut-paper manipulative condition, or a discovery learning, Logo projects condition. Results reveal that the model can indeed support the acquisition and transfer of four problem solving strategies—subgoals formation, forward chaining, systematic trial and error, and analogy—whereas neither discovery learning in a Logo environment nor direct instruction with concrete manipulatives practice can accomplish that. Indications are that the model can support the teaching and learning of alternative representation strategies as well. The findings support claims for the efficacy of Logo as a medium conducive to the teaching and learning of problem solving, and argue for the use of knowledge-based instructional design and computing environments in the creation of problem solving interventions. (33 references)

Management/Administration

ED318393

Elementary School Instructional Computing: Don't Let Administrators Feel They've Already Paid Their Dues.

Beaver, John F.

[1987], 13p. For a related report, see ED 318 392.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Budgets; *Computer Assisted Instruction; *Expenditure per Student; *Resource Allocation

Some school administrators may feel that initial investments in instructional computing programs were sufficient, and that the programs do not merit continued support. Information on fund allocation for outstanding instructional computing programs can be useful to the "typical" school administrator seeking advice on how best to allocate the limited funds available for instructional computing. During the fall of 1987, a study investigated the budgetary characteristics of 73 elementary schools believed to have developed outstanding instructional computing programs. The schools were surveyed to determine (1) whether and for how long computer expenses had been permanent line items in the schools' budgets; (2) the computer-related costs per student for a 2-year period; and (3) the portion of schools' complete computer budgets allocated to each computer-related expense category. The survey found that computer expenses were not permanent line items in the budgets of over 70% of the schools studied; that the median computer-related expense per student dropped dramatically over the period studied; and that the largest portion of schools' budgets was going toward hardware, followed by software, staff development, and equipment maintenance. In conclusion, educational leaders should strive to reverse the apparent trend toward falling budgets and raise expenditure levels enough to both successfully implement and support instructional computing programs. (5 references, 3 tables, and 1 figure)

ED319365
Troubleshooting Micro's.
Black, B. R.
Polk County Board of Public Instruction, Bartow, FL.
1989, 13p. This document is based on the larger ED 319 364.
EDRS Price: MF01/PC01 plus postage.
Document Type: Non-Classroom Material (055)
Major Descriptors: *Equipment Maintenance; *Microcomputers; *Troubleshooting

This guide provides instructions for preventive maintenance and for making minor technical adjustments on microcomputers. General hints are provided for all microcomputers concerning static electricity reduction; use of dust covers; heat, magnetic fields, and floppy disks; and the use of halogen fire extinguishers. These are followed by troubleshooting suggestions specific to Apple computers and their peripherals, including the Macintosh, Apple IIc, Apple IIe, Apple IIGS, and the Image Writer II.

ED319679
Curriculum Management System: A Computer Managed Curriculum.
Mann, George; Kitchens, Joe
8 Feb 1990, 12p. Paper presented at the Annual Meeting of the Association of Teacher Educators (Las Vegas, NV, February 5-8, 1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Conference Paper (150); Project Description (141)
Major Descriptors: *Academic Achievement; *Computer Managed Instruction; *Curriculum Development; *Individualized Instruction; *Mastery Learning

A description is given of the development, implementation, and evaluation of the Curriculum Management System (CMS), a computer managed system that utilizes input from research findings on effective schools. The goals and objectives of instruction are clearly delineated and effectively communicated to students and their parents. Each student, teacher, and parent receives a computer generated plan of study every 2 weeks which specifies the goals, objectives, and learning activities to be used with each student. Each plan of study is individualized to accommodate the student's developmental level as determined by criterion referenced tests. As the scores of the criterion referenced tests are entered into the CMS, the system automatically builds a plan of study. The CMS encourages high expectations for student achievement and makes it reasonable to have high expectations because each student is working on mastering content which is at the appropriate level. Parents receive highly detailed computer generated reports every 2 weeks informing them of the student's progress. Teachers are enabled to identify objectives which have or have not been mastered at an acceptable level for each student.

ED319397
Long-Range Plan for Technology in Elementary and Secondary Education in New York. Using Technology To Pursue Excellence in Schools.
New York State Education Department, Albany. Office of Elementary and Secondary Education.
Jan 1990, 68p. For a related report, see ED 323 966.
EDRS Price: MF01/PC03 plus postage.
Document Type: Non-Classroom Material (055); Position Paper (120)
Target Audience: Policymakers; Practitioners
Major Descriptors: *Educational Planning; *Educational Technology; *Equal Education; *Excellence in Education; *Long Range Planning

The intent of this long-range plan is to provide direction for local, regional, and state level planning so that technology can be applied more effectively to enhance the teaching/learning environment and to improve the management of schools in the state of New York..The plan extends the statement of direction outlined in the *Statement of Strategic Direction for Computer Technology* (1984) to address instructional applications, instructional support, and management applications of technology in a more comprehensive manner. The major sections of the report include: (1) a description of existing programs utilizing educational technology throughout the state; (2) an outline of the 24 assumptions underlying the *Vision of the Future* paper which was presented to teachers, district superintendents, and superintendents of schools for evaluation in the summer of 1989; (3) a synthesis and reorganization of the *Vision* paper based upon the evaluation; (4) an outline of critical elements required to implement the dimensions of the paper; (5) a list of impediments to implementing the plan, as identified by reviewers of the earlier *Vision* paper; (6) a statement of four action recommendations proposed for approval by the Board of Regents for implementing the plan; and (7) recommended options for implementing the plan. Appended is a list of the technology network ties policies for statewide information systems as adopted by the State Board of Regents in 1989. The rationale for each policy is included.

ED310162

Monitoring Student Proficiency with Computer-Managed Instruction: HSPT and Other Assessed Skills.

Stapleton, Julia A.

New Jersey State Department of Education, Trenton. Division of General Academic Education.

1987; 118p.

Available from: New Jersey State Department of Education, Distribution Services, 225 West State St., CN 500, Trenton, NJ 08625 ($5.75).

EDRS Price: MF01/PC05 plus postage.

Document Type: Project Description (141); Test, Questionnaire (160)

Major Descriptors: *Basic Skills; *Computer Managed Instruction; *Information Technology; *Management Information Systems

Software and computer management systems that enable educators to manage the monitoring of student progress in acquiring skills for the High School Proficiency Test (HSPT) and other standardized tests used in New Jersey schools are described in this study. Focus is on the data collection components for student skill proficiency using the computer as a tool for instructional management. Students in New Jersey are assessed annually in reading, mathematics, and language arts to identify those who meet established minimum levels of proficiency. The HSPT is the assessment instrument for grade 9 and is the key element in the state's effort to raise the basic skills standards for its students. Students in grades 3 through 8 and 11 through 12 are assessed on a variety of state-approved tests. Computer management tools can expedite the process of monitoring student achievement. Research on computer-managed instructional systems illustrates its wide application in a variety of educational settings. Four sections of annotated descriptions of systems and software provide a sample of products educators may want to investigate as a means of monitoring student competencies on the HSPT or other standardized tests. The four sections are: (1) skills software with student recordkeeping features; (2) comprehensive curricula systems; (3) networked systems; and (4) database software. These sections list the title, purpose, hardware, grade levels, description, training, costs, and distributor of each of 31 software packages. Systems and software are also indexed by subject, title, and producer. A 49-item list of references is included. Selected books and periodicals, related documents, and contacts in New Jersey are listed. The Evaluation Form and Computer-Managed Instruction Program Identification Form are appended.

ED309750

1988-2000 Long-Range Plan for Technology of the Texas State Board of Education.

Texas Education Agency, Austin.; Texas State Board of Education, Austin.

Dec 1988, 152p.

Available from: Texas Education Agency, 1701 North Congress Ave., Austin, TX 78701-1494 (first copy free; all others $5.00 per copy).

EDRS Price: MF01/PC07 plus postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Uses in Education; *Educational Planning; *Educational Technology; *Program Implementation; *Statewide Planning

This plan plots the course for meeting educational needs in Texas through such technologies as computer-based systems, devices for storage and retrieval of massive amounts of information, telecommunications for audio, video, and information sharing, and other electronic media devised by the year 2000 that can help meet the instructional and productivity needs of public education. First, the economic status of the state is outlined, a rationale for the incorporation of technology into the schools is given, and the potential benefits of technology and its expected impact on teaching, learning, curriculum, management, and facilities are reviewed. Objectives and requirements are presented in tabular form for student workstations, teacher workstation modules, administrator workstations, open-access learning centers, and telecommunications centers. An action plan for technology integration is then described which focuses on the priority areas of classroom instruction, instructional management, distance learning, and communications. Implementation of the plan is discussed in terms of hardware procurement and purchase, courseware adoption and provision, training and certification of teachers, instructional delivery systems, and research and development. Calendars are also provided for three phases of implementation—1988-89 through 1991-92; 1992-93 through 1995-96; and 1996-97 through 1999-2000. Budget requests to the state legislature for incorporating technology into public education complete the main body of the report. A four-page reference list is included.

ED317197
Initiating the Use of a Microcomputer Database in an Elementary School Setting.
Vitchoff, Lorraine G.
1989, 92p. Ed.D. Practicum, Nova University.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Practicum Paper (043); Research Report (143); Test, Questionnaire (160)
Major Descriptors: *Computer Assisted Instruction; *Computer Literacy; *Databases; *Elementary School Students; *Faculty Development

This practicum was designed to initiate the use of databases in an elementary setting. The primary goal was to establish a workable method to incorporate the use of databases and instruct teachers on how to use a sophisticated computer application. The peripheral goal was to transmit the newly-learned skills of the teacher to the students. A monitoring checklist was used to obtain pre-training data on teachers' knowledge of databases. Teachers were then exposed to a variety of databases and were encouraged to develop their own uses. A post-training checklist was then administered. Students were also instructed on how to use databases. Objectives for the teachers were to define the word "database"; create a database and use the various functions (including sorting, arranging, selecting, printing, and copying); and demonstrate the use of a database for classroom instruction. The objective for students was to define "database" and demonstrate the ability to execute the find, arrange, and select commands. Data are presented in the form of seven tables and six figures. Analyses of the data revealed that 100 percent of the participants met the majority of the behavioral objectives. Appendixes include the faculty and staff person surveys and their results, checklists used for pre- and post-monitoring of teachers and students and their results, a calendar of activities for the project, workshop agendas, a sample lesson plan, and the post-training and implementation survey and its results. (26 references)

Research

ED317192
The Effects of Computer Usage on Computer Screen Reading Rate.
Clausing, Carolyn S.; Schmitt, Dorren Rafael
Nov 1989, 18p. Paper presented at the Annual Conference of the Mid-South Educational Research Association (Little Rock, AR, November 8-10, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Reading Rate; *Text Structure; *Visual Perception

This study investigated the differences in the reading rate of eighth grade students on a cloze reading exercise involving the reading of text from a computer monitor. Several different modes of presentation were used in order to determine the effect of prior experience with computers on the students' reading rate. Subjects were 240 eighth grade students selected from computer literacy classes in seven schools located in a large suburban area. They were randomly assigned to one of four treatment groups: white text on black background, black text on white background, white text on light blue background, and black text on light blue background. A Pearson correlation was used to analyze differences based on questions relating to previous computer usage. In addition, a two-way factorial analysis of variance (ANOVA) was performed using type of user and color group as the independent variables, with reading rate as the dependent variable. Neither the effect of color nor the amount of previous computer experience was found to be statistically significant in influencing reading rate. Correlation and ANOVA data are presented in two tables. (19 references)

ED315045
Research and Evaluation Trends in the Uses of Computer-Based Tools for Learning and Teaching.
Hunter, Beverly
[Jun 1988], 12p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070)
Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Computer Software; *Trend Analysis

Current research and evaluation studies describe changing knowledge about the effects and conditions of computer-based tools in learning and teaching in elementary and secondary school classrooms. Current studies of computer-based tool use are characterized by: (1) a focus on many dimensions of

learning, learners, and learning environments; (2) an increasing concern for learners' individual needs; (3) an interest in the process as well as the outcomes; (4) a concern for the effects of knowledge representation on learning and understanding; (5) interest in teachers' roles; (6) a focus on collaborative learning; and (7) a concern for evaluation methods. While tools are most often used to support the writing process, other applications include social studies problem solving; mathematics concept formation and problem solving; modelling of physical, biological, and social systems; graphing; science collaboration through the use of networking tools; and databases to support scientific inquiry. Recommended areas for research and development include learning and teaching using computer-based tools, reassessment to facilitate the integration of tools into the curriculum, evaluation methods, teacher preparation and enhancement, the development and application of new technologies, and social issues. (90 references)

ED311848

Using Computer-Controlled Audio/Video Feedback To Integrate Evaluation and Training.

Ives, William

Mar 1989, 15p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 25-30, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120); Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Evaluation Methods; *Feedback; *Individualized Instruction; *Interactive Video; *Optical Data Disks

Continued advances in computerized training technology allow for a better link between instruction and evaluation. The use of computer-controlled audio and video feedback takes the automation of a mastery learning approach with its frequent shifts between instruction and testing a step further and begins to blur the distinction between training and evaluation. The students are empowered to be their best critics and they take over part of the role of their supervisor or evaluator. Students are first trained on how to analyze correct use of a skill, then they are given the means to analyze their own performance based on the criteria provided. Students are reminded of these criteria as they view their performance. Based on their own evaluation, they can repeat their efforts until their skill level meets the criteria they were trained on. Their supervisor is relieved of this initial evaluation effort and students are given an opportunity to internalize these self-evaluation skills for ongoing use. To make full use of the potential within such advances in automated instruction requires the development of instructional models that empower students to be their own best evaluators and which integrate evaluation and training. Descriptions of two versions of the system are provided—one using interactive video coupled with a videotape recorder and camera, the other using CD-ROM technology to capture and record student responses in a completely digitized, audio-only feedback environment—as well as case study examples of its use in industrial and corporate training, and evaluation study results of its teaching effectiveness. (25 references)

ED317193

Integrating Computer Usage with the Teaching of School Subjects: A Study of a Naturalistic Computer-Intensive Environment.

Johnson, Colleen; Ross, Steven M.

Nov 1989, 11p. Paper presented at the Annual Conference of the Mid-South Educational Research Association (Little Rock, AR, November 8-10, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *High Risk Students; *Teaching Methods

The role of the computer is examined in Lester Demonstration School, an optional school program offered by the Memphis City School System (an Apple Classroom of Tomorrow site). The student population is almost entirely black and generally considered to be socioeconomically disadvantaged and academically at-risk. Repeated observations were made of two classrooms (fifth grade and sixth grade) on a periodic basis over an 8-week period in the Spring of 1989. Three class sessions which were observed illustrate the different approaches to instruction at Lester using the computer. Each of the three teachers (a mathematics teacher, an English teacher, and a reading teacher) had a distinctive style of teaching, and their instructional methods, while all following the same general model, were molded to the combination of their unique teaching personalities and the material to be covered. All three methods appeared to be effective. The methods used by the math and reading teachers, for example, seemed to use the computer effectively for reducing the teacher-student ratio. By using the computer and applicable software as a teaching aid, they were able to provide learning experiences for all of the class while retaining the instructional benefits to be experienced when instructing smaller groups. Both of

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these teachers have developed models of teaching using accessible computer technology that seems to allow for more independent tutoring.

ED317569
The Importance of Computer Programming Skills to Educational Researchers.
Lawson, Stephen
Jan 1990, 24p. Paper presented at the Annual Meeting of the Southwest Educational Research Association (Austin, TX, January 25-27, 1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Evaluative Report (142); Conference Paper (150)
Major Descriptors: *Computer Uses in Education; *Educational Researchers; *Factor Analysis; *Programing; *Research Methodology; *Statistical Analysis

The use of the modern computer has revolutionized the field of educational research. Software packages are currently available that allow almost anyone to analyze data efficiently and rapidly. Yet, caution must temper the widespread acceptance and use of these programs. It is recommended that the researcher not rely solely on the use of "canned" software program packages for analyzing data. It may also be important to learn to use a computer language, preferably FORTRAN or BASIC, to augment research skills and to create the opportunity for conducting analyses that are not automated in statistical packages. Several of these languages can be used to write programs that perform sophisticated analyses even on microcomputers. A computer program written in FORTRAN-77 is presented as an example. This program, CENFAC, extracts factor pattern coefficients from a correlation matrix utilizing the centroid method of factor extraction. Although this method of factor analysis has been largely abandoned in favor of others, it is useful for teaching students the concepts underlying factor analysis and other basic concepts of statistics. Tabulated output from the CENFAC program is appended.

ED310147
Reflexibility in Problem Solving: The Social Context of Expertise. Report No. 13.
Levin, James A.; And Others
California University, San Diego. Center for Human Information Processing.
Aug 1986, 15p. Paper presented at the Annual Conference of the Cognitive Science Society (8th, Amherst, MA, August 1986).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Conceptual Tempo; *Discovery Learning; *Problem Solving

A series of studies conducted to identify the factors that block and unblock problem solving is described. Through the construction of an isomorph of the classic "water jar" problems developed by A. S. Luchins (1942) as a dynamic graphic micro-world, several factors involved in producing blocked states were identified. Subjects included 10 individuals and 10 pairs of subjects. By comparing the behavior of individuals tackling the "missionaries and cannibals" problem to that of pairs of subjects solving this problem, a study identified means by which problem solvers operating in a social context are able to overcome blocks that discourage individuals. These studies point to the importance of "reflection" (evaluation of problem-solving results) for flexible problem solving. This research suggests that teaching students to analyze what they have done will help them develop flexibility in using a new approach when blocked. The results may also account for the difficulty in showing learning in "discovery learning" uses of computers, such as the use of LOGO, since such uses often do not encourage students to reflect on the outcome of their problem solving.

ED316185
Pedagogical Strategies for Human and Computer Tutoring.
Reiser, Brian J.
Mar 1989, 34p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 30-April 2, 1989).
EDRS Price: MF01/PC02 plus postage.
Document Type: Position Paper (120); Research Report (143); Conference Paper (150)
Major Descriptors: *Artificial Intelligence; *Computer Assisted Instruction; *Feedback; *Problem Solving; *Tutoring

The pedagogical strategies of human tutors in problem solving domains are described and the possibility of incorporating these techniques into computerized tutors is examined. GIL (Graphical Instruction in LISP), an intelligent tutoring system for LISP programming, is compared to human tutors teaching the same material in order to identify how the intelligent tutoring system achieves the

pedagogical goals of human tutors. This comparison shows that model-tracing tutors can provide the immediate feedback and guidance provided by human tutors, such as hints when students are stuck, feedback to help in locating an error, and guidance in repairing an error. Currently, human tutors are more subtle, less direct, and possibly more gentle in this feedback process, but the cognitive and motivational consequences have yet to be explored. Computer tutors are currently limited by a low bandwidth of communication, but many advantages of visual displays are now being explored. Much further research is needed on the issues of the timing and content of feedback, student control, and learning by discovery. Intelligent tutors are now being used as experimental tools with which to explore these issues. (45 references)

ED321729
Methodological Weaknesses with CAI Research.
Schmitt, Dorren Rafael
24 Feb 1989, 19p. Paper presented at the Annual Meeting of the Eastern Educational Research Association (Savannah, GA, February 22-25, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Courseware; *Research Design; *Research Problems

Since about 1962, researchers have explored the effectiveness of educational software in the schools under various conditions, and many have concluded that computer assisted instruction (CAI) is effective. Many of the studies reviewed to support this conclusion, however, had design flaws. Reviews of educational software effectiveness studies have noted four major research design weaknesses: (1) small sample sizes; (2) lack of identified criteria for determining "quality" software; (3) inappropriately used statistics; and (4) inadequate time allocated to conducting the study. Because the actual studies have design flaws, these research design weaknesses will be reflected in the results of the studies and even compounded should meta-analyses using these studies be performed. These major design weaknesses are discussed and selected studies are reviewed to illustrate them. Practical solutions to the design flaws are proposed, and the effects of the design flaws on meta-analyses are outlined. An appended table displays the 16 randomly-selected studies used to illustrate the design flaws together with data for each one on sample size, duration of the study, the software used, and the statistical techniques used to analyze the data. (45 references)

ED315046
Teacher Assessment of Elementary Schools' Computer Laboratories.
Zollman, Alan; Wyrick, James
8 Sep 1988, 18p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Test, Questionnaire (160)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Facility Utilization Research; *Laboratories; *Microcomputers; *Teacher Attitudes

In order to evaluate the effectiveness of the elementary computer laboratories and the Educational Systems Corporation (ESC) software in the Fayette County (Kentucky) Public Schools, a Likert-type questionnaire on teacher attitudes and beliefs was designed, field-tested, revised, and distributed at the end of the 1988 spring semester. Analyses of the 173 responses received indicated that the teachers had very positive attitudes toward the computers, the labs, and the software. Teachers were extremely positive about the decision to set up computer labs with the ESC mathematics and reading software, and a large number felt that each of their students was "on task" throughout the lab period. Most considered the ESC software to be compatible with current mathematics and reading curriculum content and methods. In general, teachers wanted more laboratory time to use the software with their classes. Most teachers stated that they would be willing to work with other staff members and consultants to become more effective in using software for instruction. A copy of the questionnaire with a tally of the responses and comments offered by 53 of the respondents are appended. (6 references)

Software

ED315062
Selecting Microcomputer Courseware. ERIC Digest.
Beattie, Elena D.; Preston, Nancy R.
ERIC Clearinghouse on Information Resources, Syracuse, NY.
Dec 1989, 4p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available From: ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, NY 13244-2340 (free while supply lasts).
EDRS Price: MF01/PC01 plus postage.
Document Type: ERIC Product (071)
Major Descriptors: *Computer Assisted Instruction; *Computer Software Reviews; *Courseware; *Evaluation Criteria

The number of educational software packages on today's market is growing steadily. A large percentage of them are found to be of poor quality in terms of instructional and/or technical design. Arguing that a microcomputer in the classroom is only as effective as the software used with it, the first part of this digest provides an overview of the basic steps in courseware selection and evaluation that are recommended in the educational literature: (1) evaluating needs and constraints; (2) identifying software titles and previewing copies; and (3) evaluating the software package. Criteria for evaluating the content, instructional qualities, and technical characteristics of courseware are included in the second part. Finally, a select resource guide lists organizations, journals, guidebooks, indexes, and databases from which useful information can be obtained. (7 references)

ED319374
Research and Design Issues Concerning the Development of Educational Software for Children. Technical Report No. 14.
Char, Cynthia
Bank Street College of Education, New York, NY. Center for Children and Technology.
Apr 1983, 7p. Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Canada, April 11-14, 1983).
Sponsoring Agency: National Institute of Education (ED), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Science Education; *Computer Software Development; *Courseware; *Instructional Design

Several research and design issues to be considered when creating educational software were identified by a field test evaluation of three types of innovative software created at Bank Street College: (1) Probe, software for measuring and graphing temperature data; (2) Rescue Mission, a navigation game that illustrates the computer's use for simulation; and (3) Whale Search and Treasure Hunt, games that introduce the notion of programming to children. The field test used a case-study approach to examine the comprehensibility, appeal, and usability of the programs. The most striking finding was the range of use of the software in different classrooms, including differences in the proportion of students having access to the computer, the amount of time each student used the software, the degree and type of teacher involvement, and classroom organization. It was also found that the use of software was influenced by computer and teacher resources, as well as by prior teacher training in and perceptions of science, math, or computers. Software design implications point to the need for creating software that allows students to work in a collaborative fashion independent of the teacher and for addressing comprehensibility at all levels. It is recommended that teachers be provided with a conceptual framework for software.

ED309737
Parents' Guide to Highly Rated Educational Software. Over Two Hundred Highly Rated Software Programs for Home Education.
Educational Products Information Exchange Institute, Water Mill, NY.
1988, 41p.
Available from: Educational Products Information Exchange (EPIE) Institute, P.O. Box 839, Water Mill, NY 11976 ($5.95).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Non-Classroom Material (055); Directory (132)

Major Descriptors: *Computer Assisted Instruction; *Computer Software Reviews; *Courseware

The guide presents a collection of over 200 microcomputer programs appropriate for home education. All software packages have been evaluated by at least two reviewing agencies using the following criteria: (1) emphasis on user control of the learning process; (2) usable by several age groups; (3) usable for remedial purposes as well as first-time learning; (4) usable on computer systems widely available in homes; and (5) good values for the money. The entries are categorized alphabetically by subject, and, where appropriate, by topic. Subject areas are aviation and space travel, business, comprehensive (programs for all subjects), computers, early learning/preschool, English/language arts, fine arts, foreign language, health, home economics, logic/problem solving, mathematics, reading, science, and social studies. A list is included of names, addresses, and telephone numbers of software publishers whose products are described. A glossary of major terms used in the guide is also provided.

ED319392

The Role of Formative Research in the Design of Educational Computer Software. Technical Report No. 49.

Honey, Margaret A.

Bank Street College of Education, New York, NY. Center for Children and Technology.

Feb 1990, 10p. A version of this paper was presented at the Annual Meeting of the American Evaluation Association (Boston, MA, October 1987).

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120); Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Formative Evaluation; *Instructional Design

Noting that formative research on educational computer software has traditionally focused on comprehensibility, appeal, and usefulness, this report argues that these three elements tell us very little about the actual role that the formative researcher plays in the instructional design process. This paper outlines the complexity of the tasks and skills required in formative research by presenting a case study of the design of an educational computer program, "Maya Math," one of the classroom modules developed as part of the "Second Voyage of the Mimi" project at Bank Street College of Education.

ED316202

Software Development through ACOT Teachers' Eyes. ACOT Report #4.

Knapp, Linda

Apple Computer, Inc., Cupertino, CA.

1989, 8p. *Apple Classrooms of Tomorrow Perspectives*. For additional reports in this series, see ED 316 199-203.

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Instructional Development; *Interdisciplinary Approach; *Language Arts

Eight Apple Classrooms of Tomorrow (ACOT) teachers met with software developers at the Florida Instructional Computing Conference in January 1989. During the session, the panel of ACOT teachers expressed their wants and wishes for educational software and developers responded with their own concerns. The face-to-face communication provided a successful strategy for discussing future software development for education. Teachers expressed their need for: (1) a network management system for curriculum software that will identify students' needs as well as record their progress; (2) curriculum software that combines practice with meaningful applications of the skills being taught (e.g., adding word processing capabilities to language arts software so that students can use newly-acquired spelling and vocabulary skills to compose sentences or paragraphs); (3) software that complements a literature-based language arts curriculum; (4) software that supports the process approach to writing; (5) curriculum software for the Macintosh; and (6) interdisciplinary software. While teachers noted that many ACOT students do better on standardized tests because they are more highly motivated to learn with computers, several sites reported that test score averages have stayed the same since the introduction of ACOT programs. According to the teachers, students have become more active, independent learners as the result of computer use. Teachers saw their role changing from that of disseminator of information to facilitator of learning.

ED319372

Software in the Classroom: Issues in the Design of Effective Software Tools. Technical Report No. 15.

Kurland, D. Midian

Bank Street College of Education, New York, NY. Center for Children and Technology.

Apr 1983, 13p. Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, April 11-14, 1983).

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Computer Software Development; *Microcomputers

This paper identifies three ways that computers are used in educational contexts. The first and most widespread use is as a tutor, i.e., as a delivery system for programmed instruction and drill-and-practice activities. The second use is as a programming environment to teach programming languages such as BASIC, LOGO, or PASCAL. The third use is as a flexible, reconfigurable tool, employing software that can turn the computer into a word processor, calculator, music system, data organizer, graphing system, note taker, or bulletin board. The first two models (computer as tutor and as programming environment) are discussed briefly, and the third mode (computer as tool) is discussed in more detail. Various types of software and applications in this mode are described. It is argued that, although this is the most neglected of the three approaches, it is the type of use which holds the most promise for computer use in the classroom.

ED313011

The 1988-89 Educational Software Preview Guide.

Lathrop, Ann, Ed.

Educational Software Evaluation Consortium, Menlo Park, CA.

1988, 74p. Developed by the Consortium at the California Software Evaluation Forum (Menlo Park, CA, May 9-12, 1988). For the 1986 preview guide, see ED 273 262; for a related curriculum guide, see ED 313 012.

Sponsoring Agency: California State Dept. of Education, Sacramento. Available from: Publications Sales, California State Department of Education, P.O. Box 271, Sacramento, CA 95802-0271 ($2.00 plus sales tax for California residents).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Non-Classroom Material (055); Directory (132)

Major Descriptors: *Courseware; *Microcomputers

This guide contains a list of commercially available microcomputer software programs for instructional use in preschool through grade 12 that has been favorably reviewed by the Educational Software Evaluation Consortium, which represents 29 organizations involved in computer education throughout North America. Only commercially available software is included. The guide is intended for use by educators to locate programs they may want to preview to determine its suitability for their instructional programs and students. Titles are listed under the following curriculum areas: art; business education; computers; electronic periodicals; health; instructional tools; keyboarding; language arts; library media skills; mathematics; music; preschool/early childhood; problem solving/logic; science; social science; tests and testing; vocational education/industrial arts; and world languages. Each entry includes the title, publisher, computer type(s), instructional modes, rating, grade levels, price, and a brief annotation. Titles are also listed alphabetically. A list of consortium participants and a directory of publishers are included.

ED316209

Only the Best: Preschool-Grade 12. The Annual Guide to Highest-Rated Educational Software, 1990 Edition.

Neill, Shirley Boes; Neill, George W.

1989, 137p. For the 1989 edition, see ED 303 141.

Report No: ISBN-0-8352-2766-9

Available from: R. R. Bowker, Order Department, PO Box 762, New York, NY 10011 ($26.95).

Document not available from EDRS, and not in the ERIC Microfiche Collection.

Document Type: Directory (132); Book-Product Review (072); Non-Classroom Material (055)

Major Descriptors: *Computer Software Reviews; *Courseware; *Evaluation Criteria

Designed to aid teachers, school administrators, librarians, students, and parents in selecting educational software for preschool through grade 12, this guide lists 231 programs chosen from 6,000 evaluations conducted by 35 education software evaluation efforts in the United States and Canada. The

introduction provides a detailed explanation of how the programs were selected, and the first of four major parts of the guide presents an alphabetical listing by title of the 185 highest rated programs as well as a listing by the following subject areas: arts, college entrance exams, early childhood education, foreign language, health education, language arts, mathematics, problem solving, science, social studies, student helpers, tool programs, and typing. The description for each of these programs includes the subject area, the copyright date, grade level(s), hardware requirements, cost, type of program, a brief description, teaching tips, a summary of evaluation conclusions, and bibliographic citations for several reviews that appeared in magazines. The second part lists 46 "alert" or "highly promising" new programs that had fewer excellent or good evaluations than the highest rated programs. The 158 highest rated programs in 1989 are listed alphabetically within subject areas in the third part. Each listing includes the producer, computer requirements and price, grade level(s), and copyright date. The final section provides the names, addresses, and telephone numbers of the producers of software listed in this edition.

ED316210

Only the Best: Preschool-Grade 12. The Cumulative Guide to Highest-Rated Educational Software, 1985-89.

Neill, Shirley Boes; Neill, George W.

1989, 314p.; For the 1990 edition of the annual guide, see ED 316 209.

Report No: ISBN-0-8352-2851-7

Available from: R.R. Bowker, Order Department, PO Box 762, New York, NY 10011 ($49.95).

Document is not available from EDRS, and not in the ERIC Microfiche Collection.

Document Type: Directory (132); Book-Product Review (072); Non-Classroom Material (055)

Major Descriptors: *Computer Software Reviews; *Courseware; *Evaluation Criteria

This cumulative guide lists the 550 highest rated programs identified by "Only the Best" from the evaluation reports of 37 evaluation services over a 5-year period. The introduction describes the selection criteria used as well as the individual evaluation services whose evaluations were used, and lists sources where the evaluations originally appeared. The first of two major sections provides an alphabetical listing of the programs by title which serves as a table of contents to the listings by the following subject areas: arts, business education, college entrance exams, computer education, computer science, early childhood education, foreign language, health education, language arts, math, problem solving, science, social studies, student helpers, tool programs, and typing. Each entry under the subject heading includes the title of the program, its producer, copyright data, grade level(s), hardware requirements, cost, type of program, a brief description, a listing of evaluation conclusions, and bibliographic citations for reviews that appeared in magazines. The second section provides the names, addresses, and phone numbers of producers of all the programs included in this edition.

ED320570

New and Promising: Software Worth a Look. A MicroSIFT Survey of Educational Software Preview Center Coordinators. Volume II, No. 1.

Podany, Zita

Northwest Regional Educational Laboratory, Portland, OR.

Mar 1990, 10p. For Volume I, No. 4 (November 1989) of this series, see ED 319 363.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Directory (132)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Language Arts; *Mathematics Instruction; *Science Instruction; *Social Studies

This guide lists 21 software packages considered to be worthy of further consideration by other reviewing agencies and schools by a group of 12 computer coordinators from educational software preview centers and evaluation agencies. These software products have been selected as not being likely to appear in the reviews produced by major software evaluation agencies. Included are reviews of courseware for applications in biology, civics, geography, geology, history, language arts, mathematics, music, physics, problem solving, and writing. The types of programs include simulations, use of computer tools (e.g., Hyperscreen), word processing, tutorials, databases, and games. In addition to a brief description of the software package, each entry includes information on: (1) the publisher; (2) the suggested grade level(s); (3) topics addressed; (4) hardware requirements; and (5) price. A list of software producers' addresses and telephone numbers is also provided.

ED320568

Advisory List of Computer Courseware. April-July 1990.

North Carolina State Department of Public Instruction, Raleigh. Division of Media Evaluation Service.

April 1990, 57p. For the February and March 1990 advisory lists, see ED 320 533.

EDRS Price: MF01/PC03 plus postage.

Document Type: Bibliography (131); Product Reviews (072)

Major Descriptors: *Communication Skills; *Computer Assisted Instruction; *Courseware; *Mathematics Instruction; *Reading Comprehension; *Science Instruction

Four issues of this list (April, May, June, and July 1990) contain reviews of courseware for kindergarten through grade 12. Entries are classified by subject or application, i.e., communication skills, math, science, social studies, health, and utility software. Information on each software package includes title, publisher, copyright date, price, package contents, equipment required, suggested grade level, and program goals. This is followed by a detailed summary, a discussion of major strengths and weaknesses, and a statement of recommended uses. An annotated table of contents for each issue, arranged alphabetically by subject area, provides a quick reference to the contents of that list.

ED320533

Advisory List of Computer Courseware.

North Carolina State Department of Public Instruction, Raleigh. Division of Media Evaluation Service.

1990, 29p. For the 1983 edition, see ED 248 871. For the April-July 1990 Advisory List, see ED 320 568.

EDRS Price: MF01/PC02 plus postage.

Document Type: Bibliography (131)

Major Descriptors: *Communication Skills; *Computer Assisted Instruction; *Courseware; *Mathematics Instruction; *Reading Comprehension; *Science Instruction

Two issues of this list (February and March 1990) contain reviews of courseware for kindergarten through grade 12. Entries are classified by subject or application, i.e., communication skills, math, science, social studies, health, and utility software. Information on each software package includes the title, publisher, copyright data, price, package contents, equipment required, suggested grade level, and program goals. This is followed by a detailed summary, a discussion of major strengths and weaknesses, and a statement of recommended uses. An annotated table of contents, arranged alphabetically by subject area, provides a quick reference to the contents of each list.

ED311900

Desktop Publishing for School Use. A Critical Review of Products. A MicroSIFT Report.

Pollard, Jim

Northwest Regional Educational Laboratory, Portland, OR.

May 1989, 23p. For tabular summaries of the reviews, see ED 311 901.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Book-Product Review (072)

Major Descriptors: *Desktop Publishing; *Evaluation Criteria; *Microcomputers; *User Needs (Information)

This report evaluates 13 products described by their publishers as appropriate for desktop publishing. The products have in common the ability to combine text and graphics on a page; however, they vary greatly in capabilities and cost. Some products have a very narrow use (e.g., certificate makers and puzzle generators), and some have a very general use (e.g., drawing programs that can also format text into columns). Each product evaluated fulfills the following criteria: (1) text and graphics must be able to move freely on the page; (2) text and graphics must be able to be imported from other sources; (3) the program must be defined by the publisher as appropriate for use in schools; and (4) the product must operate on an Apple II series, a Macintosh, or an MS-DOS compatible microcomputer. It is noted that, although some products are specially packaged for schools, most are designed for business or professional use, and schools will have to make certain adjustments to those programs to fit an educational setting or specific curriculum. Presented in narrative format, the review for each product provides its price and a description of its unique characteristics; an evaluation of the ease of use which indicates its key features; a discussion of ease of learning which points out the availability of users' guides and tutorials; a summary of the system's best and worst features; and a general recommendation for appropriate applications of the product. A list of publishers' addresses and phone numbers is included.

ED311901

Product Descriptions: Desktop Publishing for School Use. A Critical Review of Products. A MicroSIFT Report.

Pollard, Jim

Northwest Regional Educational Laboratory, Portland, OR.

May 1989, 18p. For narrative descriptions, see ED 311 900.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Book-Product Review (072)

Major Descriptors: *Desktop Publishing; *Evaluation Criteria; *Microcomputers; *User Needs (Information)

This report presents tabular evaluations of 13 products described by their publishers as appropriate for desktop publishing. These products have in common the ability to combine text and graphics on a page; however, they vary greatly in capabilities and cost. Some products have a very narrow use (e.g., certificate makers and puzzle generators), and some have a very general use (e.g., drawing programs that can also format text into columns). Each product evaluated fulfills the following criteria: (1) text and graphics must be able to move freely on the page; (2) text and graphics must be able to be imported from other sources; (3) the program must be defined by the publisher as appropriate for use in schools; and (4) the product must operate on an Apple II series, a Macintosh, or an MS-DOS compatible microcomputer. Although some products are specially packaged for schools, most are designed for business or professional use, and schools will have to make certain adjustments to those programs to fit an educational setting or specific curriculum. The reviews for each of the individual products are summarized and presented in five tables: (1) Summary of Performance (the best and worst features of each of the products together with a general recommendation about appropriate applications; (2) Required and Optional Equipment, including minimum memory requirements; (3) Page Layout Features; (4) Word Processing and Graphics Features; and (5) Other Features, which include search and replace; spellcheck; style sheet, clip art, and software programs that can be used with the product. A list of publishers' addresses and phone numbers is included.

ED313012

Technology in the Curriculum. Resource Guide 1988 Update. A Guide to the Instructional Use of Computers and Video in K-12.

1988, 81p. Produced by the California Software Clearinghouse and the California Instructional Video Clearinghouse. For related preview guides, see ED 273 262 and ED 313 011.

Sponsoring Agency: California State Department of Education, Sacramento.

Report No: ISBN-0-8011-0754-7

Available from: Publication Sales, California State Department of Education P.O. Box 271, Sacramento, CA 95802-0271 ($3.50 plus sales tax for California residents).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052); Book-Product Review (072); Directory (132)

Major Descriptors: *Courseware; *Critical Thinking; *Educational Objectives; *Videotape Recordings

This resource guide lists 47 computer software and 29 instructional video programs recommended for use in grades K through 12 to help teachers achieve the learning objectives set forth by their school districts and the State of California. Programs are organized in six curriculum areas: foreign language, history-social science, language arts, mathematics, science, and visual and performing arts. Most entries for software list the source, rating, grade level, focus, description/major objectives, program type (word processing, simulation, creative tool, etc.), support materials, equipment, price, copyright date, teacher preparation time/ease of use, implementation ideas, and classroom setting. Most instructional video entries list the producer, rating, grade level, length, copyright date, focus, description/major objectives, evaluation, support materials, and implementation ideas. Some entries for both types of media also list relevant objectives from the California curriculum under the following headings: setting/course, objectives, critical thinking (clarifying issues, judging/using information, and drawing conclusions), study/basic skills, values/beliefs, and social skills. A directory of publishers/producers and an alphabetical list of programs are included. This update is designed as a supplement to the original guides and the 1987 updates.

ED310037

Avoiding Pedagogically Naive "Captive" Software.

Walbert, Mark S.

9 Apr 1988, 18p. Paper presented at the Midwest Economics Association Conference (Chicago, IL, April 7-9, 1988).

EDRS Price: MF01/PC01 plus postage.
Document Type: Evaluative Report (142); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Courseware; *Economics Education; *Instructional Effectiveness

An increasing number of non-statistical software packages are being written as supplementary instructional materials provided free or at low cost for economics principles textbooks. This paper reviews the software programs currently available as ancillary material to several major texts and compares what is available as a group against what should be available if the goal is to use the microcomputer as an effective instructional tool. Much of the current crop of software does not effectively use the computer to instruct the student in a way only the computer can. Instead, much of the software that is written is largely an electronic version of the familiar student workbook. Often this places the student in the role of an electronic page turner. To remedy this shortfall, 14 specific modifications to the software designs are recommended including the following: (1) the software package should consist of menu-driven tutorials and drills such as model simulations, an electronic sketchpad, and a database spreadsheet; (2) the tutorial program should take the form of a dialog, in the Socratic sense; (3) questions in the drill portion of the package should automatically increase in difficulty so the student remains challenged by the questions; and (4) programs should not stand alone, but should be complemented with a brief student guide showing the student how to sign on, manipulate the cursor, and get help, as well as state the explicit instructional objectives for each of the programs in the package.

ED317159
The State of Educational Software. A MicroSIFT Report.
Weaver, Dave
Northwest Regional Educational Laboratory, Portland, OR.
Oct 1989, 21p. For the 1984 version, see ED 248 881.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Computer Software Reviews; *Courseware

This report provides an analysis of microcomputer software available for elementary and secondary level instruction in 1989 as compared to 1984. Data from the Resources in Computer Education (RICE) database are used to compare distribution of software programs by grade level; hardware manufacturer; application type (drill, tutorial, simulation, game, problem solving, tool); and subject area (fine arts, business education, computer science, language arts, foreign language, mathematics, science, social studies, special education, and vocational education). Based on analyses of the changes which have taken place over the 5-year period, future directions of the educational software industry are speculated upon. The report includes an annotated list of organizations that are producing educational software reviews and that make them available either nationally or within particular states. Data for both 1984 and 1989 are displayed in eight graphs. An appended description of the RICE Database includes information on how to order custom reports generated by the microcomputer system, which replaced the original online system in 1986.

Tests/Testing

ED322178
Revisiting a Cognitive Framework for Test Design: Applications for a Computerized Perceptual Speed Test.
Alderton, David L.
Apr 1990, 18p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Testing; *Perception Tests; *Test Construction; Timed Tests

This paper highlights the need for a systematic, content aware, and theoretically-based approach to test design. The cognitive components approach is endorsed, and is applied to the development of a computerized perceptual speed test. Psychometric literature is reviewed and shows that: every major multi-factor theory includes a clerical/perceptual speed (CPS) factor; and the CPS factor is defined by tests using number, letter, or figural stimuli, but is best identified with several stimulus types. A computerized CPS test was developed, which contains three subtests: random number strings, random

letter strings, and nonsense figure strings. Items are presented in a same/different format that minimizes intersubject and intrasubject strategy variation in search sequencing. Latency and errors should increase as the length of the comparison string gets longer. The slope of a simple linear function should increase as the number of elements increases. Therefore, the length of comparison strings was varied from one to seven elements for number and letter strings, and from one to five for figure strings. In order to obtain normative data, the test was first administered to 435 Navy recruits. Following minor changes, the final version was administered to 722 subjects. Each subject took the three computer CPS subtests and three paper and pencil tests. Results indicate that the computer CPS test was a better psychometric instrument than were the paper and pencil counterparts; it controls speed-accuracy tradeoffs, produces greater individual differences, is more reliable, has greater construct validity, is less "g" loaded, and is probably a purer measure of CPS. This paper calls for the resurrection of the cognitive components paradigm, which combines the knowledge and techniques of psychometric, experimental, and cognitive psychology into a mutually beneficial framework for the test design/development. A 38-item list of references, five data tables, and four figures are included.

ED320919

The Influence of Dimensionality on CAT Ability Estimation.

De Ayala, R. J.

Apr 1990, 27p. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Boston, MA, April 17-19, 1990).

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Ability Identification; *Adaptive Testing; *Computer Assisted Testing; *Estimation (Mathematics); *Test Items

The effect of dimensionality on an adaptive test's ability estimation was examined. Two-dimensional data sets, which differed from one another in the interdimensional ability association, the correlation among the difficulty parameters, and whether the item discriminations were or were not confounded with item difficulty, were generated for 1,600 simulated examinees. The generated data were used for Bayesian computerized adaptive testing (CAT) simulations (three-parameter logistic model), and the CAT ability estimates were compared with the simulated examinees' known abilities. The dimensionality of response data shifted the focus for the minimization of measurement errors from known abilities (with unidimensional data) to the average of the latent abilities (with bidimensional data). Three tables and 24 graphs summarize the study results.

ED320920

A Comparison of the Partial Credit and Graded Response Models in Computerized Adaptive Testing.

De Ayala, R. J.; And Others

Apr 1990, 17p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Estimation (Mathematics); *Scoring; *Simulation

Computerized adaptive testing procedures (CATPs) based on the graded response method (GRM) of F. Samejima (1969) and the partial credit model (PCM) of G. Masters (1982) were developed and compared. Both programs used maximum likelihood estimation of ability, and item selection was conducted on the basis of information. Two simulated data sets, one with 1,000 simulated examinees and one with 500 simulated examinees, were generated according to a linear analytic model. Both contained responses to 180 five-alternative items, of which 55 were retained for 997 simulated examinees with infit statistics between -3.0 and 3.0. The MULTILOG calibration program of D. J. Thissen (1988) was used to obtain item parameter estimates for both models from the data set. It was expected that using a data set fitted to the PCM model would result in no differences between PCM and GRM CATPs. However, the GRM CATPs provided more accurate information than did the PCM CATPs and the estimation was considered adequate. Reasons for difficulties with the PCM model are discussed. Two tables and five graphs present study data.

ED315425

Computerized Adaptive Tests. ERIC Digest No. 107.

Grist, Susan; And Others

American Institutes for Research, Washington, DC.; ERIC Clearinghouse on Tests, Measurement, and Evaluation, Washington, DC.

Feb 1989, 3p.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: ERIC Product (071); Evaluative Report (142)

Major Descriptors: *Ability Identification; *Adaptive Testing; *Computer Assisted Testing; *Individual Testing; *Test Use

Computerized adaptive tests (CATs) make it possible to estimate the ability of each student during the testing process. The computer presents items to students at the appropriate level, and students take different versions of the same test. Computerized testing increases the flexibility of test management in that: (1) tests are given on demand and scores are immediately available; (2) differences among administrators cannot affect scores and trained administrators are not needed; (3) tests can be individually paced; and (4) test security is increased. Computerized testing also offers options for timing and formatting, increases efficiency, and can provide accurate scores over a wide range of abilities. Some limitations to CATs are considered. CATs are not appropriate for some subjects and skills. Hardware limitations restrict the types of items that can be administered by computer, and many schools simply do not have the resources to administer CATs. A relatively large sample is needed to norm test items; comparable scores depend heavily on the quality of the estimates of item characteristics because each student answers a different set of items. The military has been among the pioneers in using CATs and at least two public school systems have begun to use them. A list of six organizations involved in computerized adaptive testing is included.

ED318801

Designing Your Own Rasch Analysis Program.

Linacre, John M.

Apr 1990, 20p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Computer Assisted Testing; *Item Response Theory; *Programing

Advantages and disadvantages of standard Rasch analysis computer programs are discussed. The unconditional maximum likelihood algorithm allows all observations to participate equally in determining the measures and calibrations to be obtained quickly from a data set. On the advantage side, standard Rasch programs can be used immediately, are debugged and accurate, and can report statistics that are difficult to calculate. On the disadvantage side, the user must have the correct hardware, conclusions based on numbers appearing in the output are not necessarily valid, and the effort involved in producing one's own program can be considerable. Guidelines for writing programs, including those that surpass standard programs, are provided; and sample output from a number of standard programs is examined for strong and weak points. Emphasis is on adequate and useful statistics presented as easily comprehended graphical output. Topics discussed include: estimated measure, standard error, goodness of fit, plotting fit, presenting the variable, and differential item functioning or bias. Eleven figures and a BASIC program for performing unconditional maximum likelihood estimations are provided.

ED321763

Some Technical Aspects of Providing Computerized Feedback Reports.

Petrulis, Robert

Apr 1990, 19p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Administrator Effectiveness; *Administrator Evaluation; *Computer Assisted Testing; *Educational Administration; *Feedback; *Microcomputers

This report describes a process developed by the Center for Assessment of Administrative Performance (CAAP) in Washington State which uses microcomputers to generate feedback reports for participants in an assessment process which provides participants with feedback on skills and abilities related to the successful performance of school building administrators. Noting that the system consists

of a set of six simulation exercises which have been designed to measure 136 behavioral descriptors, the report describes the process by which scores for all exercises are weighted and combined to produce overall descriptor scores which, in turn, are weighted and combined to produce scores on 12 skill and ability dimensions, i.e., instructional leadership and supervision, human relations competence, judgement, organizational ability, educational values, oral communication, written communication, problem analysis, creativity, decisiveness, group leadership, and resourcefulness. The Microrim R:Base database used to generate the feedback documents and the content of the documents themselves are described. In addition, sample feedback documents are provided.

ED313386
A New Strategy for Studying Spatial Aptitude.
Schiano, Diane J.; Barch, Don
[1989], 7p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Testing; *Problem Solving; *Spatial Ability; *Test Construction

An expert/novice paradigm is applied to the development of a computer-assisted test of spatial aptitude. The qualitative differences in encoding and solution strategies between high and low "spatials" were demonstrated. Initial efforts focused on the ubiquitous figural analogy test ("A:B::C:D:"). Converging evidence from a variety of standard tasks indicates that high scorers encode figures more flexibly, apply spatial transformations more holistically, and attempt to solve problems in a more "top-down" manner than do low scorers, but pilot results also suggest that at least some of these skills may be trainable. A new methodology has been developed to computerize testing and training in future research. Figural analogy problems from the Cognitive Abilities Test were photodigitized for use in combination with a program, called "ANALOGY," written in AmigaBASIC. The resulting test procedure has a great deal in common with the subject-controlled "moving window" technique now commonly seen in text comprehension literature. The procedure allows the subject complete freedom in selecting what to view and when to view it. The computerized procedure constitutes a clear advance over paper-and-pencil tests and standard reaction-time studies, since it yields a rich database dathered under unobtrusive yet controlled conditions. In addition to overall speed and accuracy of solution, the database program provides for direct assessment of specific problem term encoding and comparison times and of global solution strategies. The general-purpose program is easily modified and allows for a feedback option. This research tool will be applied to a variety of subject populations and training conditions.

ED319765
Using Hierarchical Models of Studying To Evaluate the Character of Students' Study Activities.
Warkentin, Robert W.; And Others
Apr 1990, 38p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA), April 16-20, 1990).
EDRS Price: MF01/PC02 plus postage.
Document Type: Evaluative Report (142); Conference Paper (150)
Major Descriptors: *Computer Assisted Testing; *Context Effect; *High School Students; *Student Evaluation; *Study Skills

An instrument was developed to measure students' engagement in various classes of study activities within multiple study contexts. This instrument is to be used in a large, ongoing research project investigating the underpinnings of student study activities and effects on academic achievement. The computer-administered instrument used—the Study Activity Questionnaire (SAQ)—is based on hierarchical models of the cognitive processing and effort management activities involved in academic study. Item types associated with different levels and dimensions of cognitive and effort management hierarchies for routine study and test preparation study were constructed. The SAQ was administered, using a microcomputer, to 235 students enrolled in 14 general biology courses at 7 high schools in the San Francisco Bay area. Results provide insights into the amount of time students engaged in study, allocation of study time, types of activities performed, and focus of cognitive activities. Data concerning students' engagement in the hierarchical study activities are encouraging. The patterns of responses reported for the routine context and the test preparation context were similar. However, the small differences that were found may be important to the extent that students change the character of their study responses study practices in response to specific contextual factors, goals, purposes, or demands. It appears that the design of the SAQ and the microcomputer administration procedure have a great deal

of potential for assessment and diagnostics. Fifteen data tables, one figure, and four samples of computer screen text are provided.

ED319749

Dichotomous Search Strategies for Computerized Adaptive Testing.

Xiao, Beiling

Apr 1990, 21p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC01.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Mathermatical Models; *Scoring; *Search Strategies; *Test Construction

Dichotomous search strategies (DSSs) for computerized adaptive testing are similar to golden section search strategies (GSSSs). Each middle point of successive search regions is a testing point. After each item is administered, the subject's obtained score is compared with the expected score at successive testing points. If the subject's obtained score does not exceed a confidence interval of an expected score at a testing point, the subject's current ability estimate is assumed to be equal to that of the testing point. Otherwise, the upper or lower half of the search region is discarded and the process is continued until the test-taker's current ability estimate is determined and the next item is selected. Monte Carlo studies with 3,300 subjects in 33 ability levels using one-parameter and three-parameter models to compare the efficiency and accuracy of DSSs, GSSSs, and maximum likelihood estimate stratgies (MLESs) indicated that all three measured well in the one-parameter situation, but that DSSs and GSSSs were more accurate efficient than were MLESs for the three-parameter model. Both DSSs and GSSSs were more robust against guessing and simpler to operate than were MLESs. Twelve graphs illustrate the study.

Subject Areas

Business

ED309240
Microcomputer Programs for Agribusiness and Natural Resources Education. A Bibliography.
Florida State University, Tallahassee. Center for Instructional Development and Services.
Apr 1988, 13p.
Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.
EDRS Price: MF01/PC01 plus postage.
Document Type: Bibliography (131)
Major Descriptors: *Agribusiness; *Computer Assisted Instruction; *Computer Software; *Natural Resources

This bibliography describes 38 materials available for computer-assisted instruction in agribusiness and natural resources education. The materials are suitable for use by regular, disadvantaged, and handicapped students and by students whose facility in English is limited. Materials are useful for developing tests, testing, reviewing, and vocabulary. Materials for inclusion in the bibliography were located through the Florida Educational Information Service (FEIS), which conducted searches of the Vocational Education Curriculum Materials (VECM) database on Bibliographic Retrieval Service (BRS). For each entry, information is provided on title, date developed, system required, content, and availability (supplier, price, format). Materials suitable for the following areas of agriculture are included: agribusiness, agricultural business management, agricultural mechanics, agricultural production, animal production, crop production, floriculture, forestry, horticulture, landscaping, nursery operations, soil conservation, and wildlife management.

ED309241
Microcomputer Programs for Business Education Occupations. A Bibliography.
Florida State University, Tallahassee. Center for Instructional Development and Services.
Apr 1988, 15p.
Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.
EDRS Price: MF01/PC01 plus postage.
Document Type: Bibliography (131)
Major Descriptors: *Bookkeeping; *Business Education; *Computer Assisted Instruction; *Computer Software; *Keyboarding (Data Entry); *Office Occupations Education; *Typewriting

This bibliography describes 47 materials available for computer-assisted instruction in business education. The materials are suitable for use by regular, disadvantaged, and handicapped students, and by students whose facility in English is limited. Materials are useful for developing tests, testing, reviewing, and vocabulary. Materials for inclusion in the bibliography were located through the Florida Educational Information Service (FEIS), which conducted searches of the Vocational Education Curriculum Materials (VECM) database on Bibliographic Retrieval Service (BRS). For each entry, information is provided on title, date developed, system required, content, and availability (supplier, price, format). Materials suitable for the following areas of business education are included: accounting, keyboarding, typewriting, bookkeeping, data entry, clerical, and data processing.

ED309244
Microcomputer Programs for Marketing and Distributive Education. A Bibliography.
Florida State University, Tallahassee. Center for Instructional Development and Services.
Apr 1988, 12p.
Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.
EDRS Price: MF01/PC01 plus postage.
Document Type: Bibliography (131)
Major Descriptors: *Business Skills; *Computer Assisted Instruction; *Courseware; *Distributive Education; *Marketing

This annotated bibliography describes materials available for computer-assisted instruction in marketing and distributive education. The materials are suitable for use by regular, disadvantaged, and

handicapped students and by students whose facility in English is limited. They may be used for developing tests, testing, reviewing, and vocabulary. The software teaches the concept of supply and demand analysis, opportunity costs, capital goods investments, and resource allocations, allowing students to develop their understanding of inventory terminology and concepts, the importance of sound inventory management, and common inventory methods. It also teaches the basics of marketing. Entries are presented in alphabetical order. Each entry provides this information: title, date, annotation, system requirements, and availability. Materials for inclusion in this bibliography were located through the Florida Educational Information Service (FEIS), which conducted searches of computerized information retrieval systems, specifically the Vocational Educational Curriculum Materials (VECM) database on Bibliographic Retrieval Service (BRS).

ED311233
Trends and Updates in Secretarial Education.
Hiatt, Diana Buell
May 1989, 21p. Paper presented at the Annual Conference of the Philippine Association of Secretarial Educators (22nd, Cebu City, Philippines, May 26-28, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Conference Paper (150); Review Literature (070)
Major Descriptors: *Database Management Systems; *Interpersonal Competence; *Office Occupations Education; *Secretaries; *Technological Advancement; *Word Processing

This document addresses curriculum requirements for the following modern secretarial functions: (1) being the primary source for storage and retrieval of information; (2) transmitting the company image to clients; and (3) filtering client contact and information to administrators served. To prepare them for storage and retrieval, secretaries should take an initial course in word processing, at least one course on using the most popular database management system of the time, and learn to perform a database search on a large central source of information or a computer airline schedule. They should be taught to use a computer program to handle basic accounting functions and to maintain an electronic calendar. Because of the information they will handle, students should be made aware of the rights to privacy. In order to transmit the company image to clients, they must be able to operate sophisticated telephone equipment, record messages quickly, and make callers feel attended to and comfortable. They should be able to operate such office machines as copiers and facsimile machines. In order to fulfill their function of filtering client contact to administrators, secretarial students should be exposed to identifying and handling common interpersonal situations through simulations. (Fifteen references are included.)

ED317814
Microcomputer Business Applications. Teacher Edition.
James, Marcia; And Others
Mid-America Vocational Curriculum Consortium, Stillwater, OK.
1986, 515p. Document contains colored paper.
Available from: Mid-America Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. CN801101: $24.00, including Apple, IBM, or TRS-80 data disk).
EDRS Price: MF02 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Business Skills; *Computer Literacy; *Computer Oriented Programs; *Microcomputers; *Office Occupations Education

This curriculum guide is designed to teach concepts associated with business applications of microcomputers. It can be used in marketing, office education, and computer literacy courses. Most activities can be done in less than 1 hour. The course is organized in eight units that cover the following: (1) systems and software; (2) electronic filing; (3) personnel records management; (4) accounting; (5) inventory control; (6) financial records management; (7) communications; and (8) planning. Each instructional unit follows a standard format that includes some or all of these eight basic components: performance objectives, suggested activities for teachers and students, information sheets, assignment sheets, job sheets, transparency masters, tests, and answers to the tests. All unit components focus on measurable and observable learning outcomes and are designed for use in more than one lesson or class period.

English as a Second Language and Foreign Languages

ED320709

Cooperative Learning with a Computer in a Native Language Class.

Bennett, Ruth

1987, 23p. Paper presented at the Association of California State University Professors' Conference on the Use of Personal Computers in Higher Education: Excellence in Education (San Diego, CA, March 26-27, 1987).

Humboldt State University, Arcata, CA. Education Department.

Sponsoring Agency: Apple Computer, Inc., Cupertino, CA; Office of Bilingual Education and Minority Languages Affairs (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *American Indian Education; *Bilingual Education Programs; *Communication Skills; *Computer Assisted Instruction; *Cooperative Learning; *Writing Instruction

In a cooperative task, American Indian elementary students produced bilingual natural history dictionaries using a Macintosh computer. Students in grades 3 through 6 attended weekly, multi-graded bilingual classes in Hupa/English or Yurok/English, held at two public school field sites for training elementary teaching-credential candidates. Teams of three students worked together at the computer to complete a dictionary page, a task involving selection of a natural item, formulation of its definition, transcription in the Unifon alphabet, translation to English, and page layout. The project focused on written sentence construction and oral communication skills. The goal of producing a dictionary dealing with plants and animals known to local tribes allowed students to use knowledge obtained from family and other tribal members. The computer provided concrete realization of abstract concepts and a self-directed interactive learning environment. Classroom observation showed that (1) students worked on the project willingly for the entire school year; (2) students' oral communication skills, used in the cooperative learning groups, developed over the year; (3) students tended to build on the work of other students; (4) older and younger students differed in their ways of viewing the natural world; and (5) older students advanced from producing literal English translations to making "good" free translations. The success of this project points to the importance of implementing a teaching methodology compatible with the learning style of the home culture. This report contains 26 references.

ED310889

Teaching and Learning with Computers: A Method for American Indian Bilingual Classrooms.

Bennett, Ruth

[1987], 17p. In: Gilliland, Hap and Reyhner, Jon. *Teaching the Native American*. Billings, Montana, 1987. Chapter 18.

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141)

Major Descriptors: *American Indian Education; *Bilingual Instructional Materials; *Computer Assisted Instruction; *Computer Software; *Cooperative Learning

Computer instruction can offer particular benefits to the Indian child. Computer use emphasizes the visual facets of learning, teaches language based skills needed for higher education and careers, and provides types of instruction proven effective with Indian children, such as private self-testing and cooperative learning. The Hupa, Yurok, Karuk, and Tolowa tribes have found a cooperative learning methodology effective in teaching reading and writing, and have developed a computer curriculum for cooperative learning. These tribes have installed their own phonetic alphabet, Unifon, on the Macintosh computer, and have produced bilingual instructional materials. In one project, part of a bilingual field experience for teacher credential candidates, students in grades 3 through 8 used the computer to produce bilingual natural history dictionaries in Hupa/English and Yurok/English. Working in teams of two or three, students wrote what they knew about particular plants and animals, translated their sentences into English, and designed page layouts. Older children served as role models for younger children, who could feel more comfortable about their contributions, knowing they were making guided choices. The teacher served as supervisor and resource. The Macintosh computer has the unique capacity of installing extra fonts, sets of characters. Any software program with a font menu can be used to write a bilingual text. This paper includes a list of Macintosh software programs, identifying skill areas and educational level for each. 14 references.

ED310639

Bilingual Academic Computer and Technology Oriented Program. Project COM-TECH, 1987-1988.

Berney, Tomi D.; Plotkin, Donna

Jun 1989, 39p. For related document, see ED 298 777.

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Computer Literacy; *English (Second Language); *Enrichment Activities; *Individualized Instruction; *Limited English Speaking

The Bilingual Computer and Technology Oriented Program (COM-TECH) completed the final year of a 3-year funding cycle. The project's primary goal was to provide bilingual individualized instruction, using an enrichment approach, to Spanish- and Haitian Creole/French-speaking students of varying levels of native and English second-language (ESL) proficiency and academic preparation. In two high schools, 237 Spanish-speaking and 106 Haitian Creole/French-speaking students were served. A bilingual resource and computer center was provided at each school, offering computer instruction, tutoring, career advisement, counseling, and help preparing for exams. The centers also sponsored career- and culture-related trips and acted as exhibition centers for Haitian and Hispanic cultural materials and classwork on career skills and computer literacy. An innovative aspect of the program was a basic skills class for parents. The project met its ESL and attendance objectives, but did not meet the content area objective. Recommendations for program improvement include freeing resource specialists from teaching responsibilities, coordination and exchange of ideas among staff of different schools, removal of latches in one computer/resource center, hiring additional counseling staff, testing students for French language skills, and providing basic French language instruction when needed.

ED311712

Bilingualism in the Computer Age. 1987-88. OREA Evaluation Report.

Berney, Tomi D.; Alvarez, Rosalyn

New York City Board of Education, Brooklyn, NY. Office of Research, Evaluation, and Assessment.

Jun 1989, 31p.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Computer Literacy; *Limited English Speaking; *Mainstreaming; *Native Language Instruction

Bilingualism in the Computer Age, a federally-funded bilingual education program at Morris High School in the Bronx (New York), served 197 native low-income Spanish-speaking students in its second year of funding. Program objectives were to improve students' English language proficiency and mainstream them as quickly as possible, develop their native language skills, enhancing their self-image, and provide career-oriented training in computer use. Extensive support services were also provided. The program achieved its objectives in English as a Second Language, native language arts, computer instruction, career orientation, attendance, and one staff development objective; the second staff development objective could not be assessed as proposed. The program did not meet its objectives in content-area subjects or New Environmental Workshops, and it could not be determined whether objectives in cultural awareness and dropout rates were met. Program participation and staffing dropped during this funding year. Major program strengths included incorporation of computer learning in the content areas and the commitment of staff. Major weaknesses were lack of teacher training in computers, lack of needed social work personnel, and late receipt of program funds. Recommendations for improvement include staff training in computer use, additional social support personnel, increased content area offerings, and rewriting of the cultural awareness objective.

ED320422

Bilingualism in the Computer Age 1988-89. OREA Evaluation Section Report.

Berney, Tomi D.; Alvarez, Rosalyn

New York City Board of Education, Brooklyn, NY. Office of Research, Evaluation, and Assessment.

Apr 1990, 27p. For 1987-88 report, see ED 311 712.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Bilingual Education Programs; *Computer Assisted Instruction; *English (Second Language); *Limited English Speaking; *Second Language Instruction; *Second Language Learning

In the 1988-89 school year, Bilingualism in the Computer Age completed its final year of instruction at Morris High School in the Bronx. The project provided bilingual instructional and support services

to 240 Spanish-speaking students of limited English proficiency (LEP) and utilized computers to develop students' English skills and native language proficiency, and to offer bilingual instruction in content areas. The project also trained students to use computers for career-related purposes and offered professional development to its staff. The project met its objectives in the subjects of science and social studies and for attendance. The project failed to meets its English-as-a-Second-Language objective, although this objective had been met the previous year. The project did not provide data on the objectives proposed for Native Language Arts, computer and career education, cultural heritage awareness, or staff development. Recommendations for program improvement include the following: (1) the purchase, if funds are available, of additional computer software; and (2) the provision of the data necessary to evaluate all the program's objectives to the Office of Research, Evaluation, and Assessment.

ED316056

The Computer Assisted Language Learning Outreach Project for Education.

Chung, Ulric; And Others

Illinois University, Urbana. Language Learning Laboratory.

Apr 1988; 34p.

Available from: Language Learning Laboratory, University of Illinois at Urbana-Champaign, G70 Foreign Languages Building, 707 South Mathews, Urbana, IL 61801.

EDRS Price: MF01/PC02 plus postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Inservice Teacher Education; *Language Teachers

The Computer Assisted Language Learning Outreach Project for Education (CALLIOPE) was established in 1985 to enhance foreign language instruction in Illinois elementary and secondary schools through inservice teacher education in the form of short workshops, intensive summer institutes, and an internship program. The specific approach is to encourage and facilitate the use of computer technology by foreign language teachers. A description of the program outlines its purpose and approach, inservice program elements, a roundtable conference used for information dissemination, and a brief critical analysis of the program and future directions. Appended materials include a list of workshop dates, locations, staff, and number of attendees from January 1986 through February 1988, a list of topics discussed as part of the summer institute curriculum, a list of 1986 and 1987 summer institute participants and their individual project topics, and a summary of the proceedings of the May 1987 roundtable conference.

ED309634

The Role of Educational Technology in the Education of Limited English Proficient Students. New Focus No. 9. Occasional Papers in Bilingual Education.

Cohen, Linda M.

National Clearinghouse for Bilingual Education, Silver Spring, MD.

1989., 12p.

Sponsoring Agency: Office of Bilingual Education and Minority Languages Affairs (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070)

Major Descriptors: *Computer Assisted Instruction; *Computer Oriented Programs; *Computer Software; *Instructional Effectiveness; *Limited English Speaking

Significant advances in hardware and software have increased the possible applications for educating limited-English-proficient students. Two major studies have focused on technology and its relationship to the education of this population. There is a great diversity of hardware currently in use in schools, either stand-alone computers or computer networks. Several emerging technologies have potential applications: videocassette recorders, compact disk read-only memory (CD-ROM), videodisks, and computers that recognize speech. There is also a variety of available software in the form of drill and practice, tutorials, simulations, games, and applications of databases, spreadsheets, programming, authoring languages and systems, and word processing. Ideally, software should be both instructional and intellectual, and whatever its use, software should not supplant the teacher but provide new methods and tools for learning. The use of word processing offers a number of advantages for teaching reading and writing to limited-English-proficient students. Factors affecting the successful implementation of technology include lack of appropriate software, inadequate software integration into the curriculum, lack of compatibility between hardware and software or between hardware components, lack of funding to support repairs and maintenance of computer systems, and lack of teacher training. Correction of these problems and increased student and teacher access are recommended.

ED313909

Recent Developments in Interactive and Communicative CALL: Hypermedia and "Intelligent" Systems.

Coughlin, Josette M.

[1989], 16p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070); Directory (132)

Major Descriptors: *Communicative Competence (Languages); *Computer Assisted Instruction; *Interactive Video

Two recent developments in computer-assisted language learning (CALL), interactive video systems and "intelligent" games, are discussed. Under the first heading, systems combining the use of a computer and video disc player are described, and Compact Discs Interactive (CDI) and Digital Video Interactive (DVI) are reviewed. The introduction of artificial intelligence in the programming of CALL is examined, allowing the user to communicate more freely with the machine within a given domain or microworld. Specific instructional techniques and approaches are described. Producers and addresses for CALL interactive videodisc systems and videodisc authoring systems are listed. The paper includes a 58-item bibliography.

ED320436

Selected Bibliography and Addresses for Computer Assisted Language Learning/Teaching and Desktop Publishing.

Geltrich-Ludgate, Brigitta

Defense Language Inst., Monterey, CA.

1990, 190p.

EDRS Price: MF01/PC08 plus postage.

Document Type: Bibliography (131)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Desktop Publishing; *Second Language Instruction; *Second Language Learning

This combined directory and bibliography contains information on 2,000 resources, including print, non-print, and organizational issues, related to computer-assisted language learning and teaching and desktop publishing. While most citations of print and non-print materials are from the 1980s, some were produced in the 1970's. Topics include language laboratories, computer programming, use of computer hardware, software, and peripherals, instructional use of telecommunications and audiovisual technology, testing, research, networking, and classroom applications at all instructional levels. Information on organizations includes address, telephone number, and, in many cases, general or specific information on products or available resources.

ED320439

Implications for Intelligent Tutoring Systems for Research and Practice in Foreign Language Learning, NFLC Occasional Papers.

Ginsberg, Ralph B.

Johns Hopkins University, Washington, DC. National Foreign Language Center.

Mar 1989, 22p. Revised version of a paper presented at a Conference on Empirical Research on Second Language Learning in Instructional Settings (Bellagio, Italy, June 20-24, 1988).

Available from: Cashier, National Foreign Language Center, 1619 Massachusetts Ave., N.W., Washington, DC 20036 ($3.00 including postage and handling; checks payable to NFLC).

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070); Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Artificial Intelligence; *Computer Assisted Instruction; *Educational Environment; *Educational Research

Most of the now commonplace computer-assisted instruction (CAI) uses computers to increase the capacity to perform logical, numerical, and symbolic computations. However, computers are an interactive and potentially intelligent medium. The implications of artificial intelligence (AI) for learning are more radical than those for traditional CAI. AI research and development promises to deepen understanding and reshape practice in and out of the classroom. This report, the first of three, gives an overview of the character and motivation of AI approaches to education and learning. The first section describes and gives the background for the report. The second section introduces AI programs designed to emulate good teaching (intelligent tutoring systems, or ITS), and computer-based "microworlds," designed to be effective learning environments. Both are compared with the more familiar CAI and simulation. In section three, the main components of ITS architecture are discussed, including domain expertise, student modeling and diagnosis, teaching strategies, planning and control, task structure, and

the learner-computer interface. Section four is concerned with how learning has been conceptualized by AI researchers, and with the design principles that derive from that conceptualization. Finally, issues concerning research and industrial design are outlined.

ED317039
Telecommunications in Foreign Language Education: A Resource List. ERIC Digest.
Krause, Julie
ERIC Clearinghouse on Languages and Linguistics, Washington, DC.
Dec 1989, 4p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); ERIC Product (071)
Major Descriptors: *Intercultural Communication; *Second Language Instruction; *Telecommunications

Foreign language and bilingual educators are in the unique position of being able to bring the world to their classrooms via the telecommunications technologies. Telecommunication is electronic communication over long distances by means of an online computer service, a telephone, a television, a satellite, or other long distance technologies. This digest discusses many of the resources available to foreign language educators, including De Orilla A Orilla, The Computer Writing Network, CompuServe, Minitel, The Global TELEclass Project (Telecommunication Enriches Language Experience), and the Satellite Communications for Learning (SCOLA). The advantages of using telecommunications in the foreign language classroom are highlighted.

ED317060
Review of CAI Materials.
McCrary, Ronald G.
Oct 1989, 23p. Paper presented at the Annual Conference on the Teaching of Foreign Languages and Literatures (13th, Youngstown, OH, October 27-28, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Review Literature (070); Conference Paper (150);
Bibliography (131)
Major Descriptors: *Computer Assisted Instruction; *Courseware; *Media Selection; *Second Language Instruction

A discussion of computer software and courseware for second-language instruction outlines considerations for selecting software of various kinds and presents a list of selected computer programs. Suggestions are made for choosing text-specific software, non-text-specific software intended for language instruction, word processors intended for language instruction, and teacher support software, including authoring systems and electronic grade books. The accompanying selected bibliography of computer-assisted instructional software is categorized by type, and within type by publisher and language. Materials in French, German, Spanish, and Italian are listed.

ED316030
Computers in the Spanish Classroom.
New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.
1989, 221p.
Available from: Curriculum Unit, Division of Computer Information Services, New York City Board of Education, P.S. 206 Room 310, Neck Road & E. 22nd St., Brooklyn, NY 11229 ($17.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Courseware; *Spanish

This guide to the use of computer software in Spanish second language instruction contains a series of lesson plans based in part on software content. The topics covered by the lesson plans are common to Spanish level 1 and 2 courses, and are intended not as a sequential course but as a reference for teachers. All lessons involve computer use and are review lessons, designed to facilitate integration of computer-based instruction with instructor methods. Each plan indicates the features of the software used and suggests applications previously found to be effective. Each lesson plan also includes an application of the word processor in addition to the use of commercial software. An introductory section reviews classroom procedures for computer and software use. Lesson plans are organized by these topics: verbs, vocabulary, structures and forms, and the use of database, spreadsheet, and word processor software for special projects. Appended materials include software duplication guidelines, diskette

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care guidelines, a list of the computer Technical Assistance Centers in each of New York's five boroughs, and a list of software used in the lesson plans.

ED319243
Passport: Technology To Help the Middle Grades Second Languages Teachers.
North Carolina State Department of Public Instruction, Raleigh.
1990, 104p.
EDRS Price: MF01/PC05 plus postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *French; *Middle Schools; *Spanish

This guide, resulting from a four-site middle school study of the use of computers and related technology in second language instruction, is presented for the use by middle school language teachers. The guide includes lessons, coded to the state teacher handbook for second language instruction, and management hints, sample lesson plans, and other resources. Introductory material includes an overview of the project, a list of project sites, and lists of individuals and software that may be useful resources for classroom teachers. A lesson plan template is also included. Sample lesson plans consist of software lessons for word processing in both French and Spanish courses, for language study in both French and Spanish, and for creative activities, including educational games and word processing utilities. The lesson plans are tied to specific, generally-available computer programs, and contain illustrations of computer screens contained in the programs. An instructional telecommunications network, available to educators in North Carolina, is also described. Suggestions and directions for classroom use of the electronic mail capabilities are offered. An appendix contains illustrated instructions for adapting a television and videocassette recorder for use as a computer monitor.

ED318233
Efficacy of Word Processing as a Writing Tool for Bilingual Elementary School Students: A Pilot Study.
Van Haalen, Teresa
[1990]
23p.; Paper presented at the Annual Meeting of the Southwestern Educational Research Association (1990).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Bilingual Students; *Field Dependence Independence; *Learning Strategies; *Word Processing; *Writing Instruction

A study investigated the writing strategies used by bilingual and monolingual students. Specifically, the study looked at field dependence vs. independence, possible differences in strategies employed by the two groups when using a word processor, the effects of strategy on the types of revisions made, and the types of revisions and cognitive strategies generating the best written compositions. Subjects were eight fourth-grade mainstream students at similar achievement levels, four of whom were Spanish-English bilingual, and four who used no Spanish at all. Students had access to a word processor in the classroom, were familiar with computers, and had participated in typing instruction. In two sessions, subjects wrote assignments and made revisions. The students answered a questionnaire about the strategies used during the writing process, and the papers were examined for revision types. Finished compositions were externally evaluated. Results did not substantiate tendencies toward field dependence or independence based on bilingualism. When using the computer to compose, bilingual students used stronger (more effective, according to research) skills than did their monolingual counterparts, and used more process strategies. Bilinguals performed more revisions between drafts, usually through insertion or single word changes. Independent analysis favored the compositions of bilinguals by a significant margin.

ED317044
Computer Assisted Instruction: A Handbook for ESL Teachers.
Yuen, Steve Chi-Yin
1989, 76p.
EDRS Price: MF01/PC04 plus postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *English (Second Language); *Microcomputers

This handbook for computer-assisted instruction in English as a Second Language (ESL) is designed to guide teachers unfamiliar with computer hardware and software through the basic procedures of using the Apple IIe system and ESL software. The handbook begins with introductory sections on the growth of microcomputer use in schools, the advantages and disadvantages of computer use, and the variety of known uses of the computer. The components and care of the Apple IIe, the use and care of diskettes, and starting up the computer are described and illustrated. Brief notes are provided on running an ESL demonstration program, stopping a program, and initializing a diskette. Assistance in evaluating and selecting instructional software is provided through a list of nine instructional considerations, a brief list of sources of further information, and a software evaluation checklist. Additional materials included are a computer glossary, a list of organizations related to microcomputers and education, lists of related periodicals and software vendors, sources of public domain vendors, and an annotated list of ESL software available at the University of Southern Mississippi.

Fine Arts

ED319504

A Study of Children's Computer-Generated Graphics.

Escobedo, Theresa H.; Bhargava, Ambika

15 Apr 1990, 39p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Childrens Art; *Computer Graphics; *Computer Uses in Education; *Developmental Stages; *Microcomputers; *Preschool Children

This study describes preschoolers' computer-generated graphics. Of specific interest were three questions: (1) What is the nature of children's computer-generated drawings in terms of the developmental stages of art? (2) How do the stages evident in children's computer-generated drawings compare with those in drawings produced with traditional art materials? (3) What evidence is there to indicate that children use the computer as a means of symbolic representation? The primary sources of data were computer-generated graphics produced by four middle-class children with no prior exposure to Apple computers or the mouse attachment. Equipment used to produce the computer graphics included an Apple IIGS computer with color monitor using a PaintWorks Plus software program and a black and white Macintosh SE with MacPaint. Video and audio data were collected in eight 1.5 hour sessions. Findings revealed that computer-generated graphics exhibited the traditional three broad developmental stages of art. Stages evident in computer art were consistent with stages in works produced with traditional art materials. Children used the computer as a medium for creating expressive and symbolic representations that reflected stages of representational development. A bibliography provides 21 citations.

ED318461

The Computer & the Right Side of the Brain.

McWhinnie, Harold J.

1989, 11p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120)

Major Descriptors: *Art Education; *Brain Hemisphere Functions; *Cognitive Processes; *Computer Graphics; *Microcomputers; *Visual Literacy

This paper presents a discussion of the use of microcomputers and computer graphics programs as basic design experiences which relate as much to the right as to the left side of the brain. It reviews selected research in art education that shows the importance of the right brain in various areas of creative behavior and in developing drawing skills. It is argued that the microcomputer allows the artist-user to function both analytically and intuitively—on both the left and right sides of the brain—with a high degree of visual and perceptual literacy, intuitive and creative insight, and aesthetic awareness. A personal experience is described involving the use of the computer with the right brain approach in computer graphics and computer assisted design. The paper concludes with comments on the work of Betty Edwards and Mona Brookes as well as observations on their ideas based upon tape recorded interviews conducted at the Los Angeles meeting of the National Art Education Association in April of 1988. (5 references)

ED318664

Computers in the Art Classroom.

New York City Board of Education, Brooklyn, N.Y. Division of Curriculum and Instruction.; New York City Board of Education, Brooklyn, NY. Office of Technology.

1986, 474p. Some illustrations may not reproduce clearly.

Available from: New York City Board of Education, Curriculum Unit, Room 310, P.S. 206, Neck Road and East 22nd Street, Brooklyn, New York 11229 ($17.00).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Art Activities; *Art Education; *Computer Graphics; *Computer Uses in Education; *Microcomputers

This New York City curriculum guide demonstrates the many ways in which art departments can use microcomputers to assist in teaching students to design different images, for different audiences and different purposes, utilizing the special ways in which computers can enhance the creative process. The book covers 168 topics, divided into 13 sections: (1) design, (2) drawing, (3) texture, (4) color, (5) graphic design, (6) art programs in BASIC, (7) cartooning, (8) photography, video, and movie making, (9) architecture, (10) stage craft, (11) fashion design, (12) crafts, and (13) print making. An appendix includes a glossary of computer terms, information about copying diskettes, ways to get technical assistance, and a list of software used in the text.

Language Arts

ED309649

Text Concordancing—What It Is and What It Can Do for You.

Carroll, David; Kowitz, Johanna

2 Apr 1989, 17p. Paper presented at the Annual Meeting of the International Association of Teachers of English as a Foreign Language (23rd, Warwick, England, April 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Software; *Discourse Analysis; *Word Processing

A text concordancer is a computer program that operates on a body of text to locate and sort all occurrences of a target morpheme, word, or pattern. Developments in word processing and hard disks in small computers have made new applications of the technique possible with direct relevance to the classroom. A discussion of the technique looks at the properties of a good concordancing program and briefly surveys some available programs. Features discussed include: the ability to accept data in many different word processing formats and ASCII; flexibility in selecting texts or sections of a text for analysis, using "tags"; range of search strategies available, including searching for phrases, and use of "wild cards"; and availability of different types of contextualization. The study discusses possible applications to the development of materials, tests, and classroom examples and illustrates these applications with a variety of corpora. The bibliography includes 33 items.

ED318452

Computers in the Whole Language Classroom.

DeGroff, Linda

Jan 1989, 11p. Paper presented at the Florida Instructional Computing Conference (Orlando, FL, January 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Review Literature (070); Position Paper (120); Conference Paper (150)

Major Descriptors: *Cognitive Processes; *Computer Assisted Instruction; *Cooperative Learning; *Reading Instruction; *Whole Language Approach; *Writing Instruction

It is argued that if whole language teachers are to use computers in their reading and writing programs, they will need both software and strategies for using computers that are consistent with their beliefs and goals. For whole language teachers, as for other good teachers, it is the teacher's beliefs about curriculum and instruction rather than the technology that will determine the role of the computer in the classroom. This paper explores the place of computers in whole language classrooms by considering how computers can facilitate teaching and learning in ways that are consistent with each of the following beliefs commonly held by whole language teachers: (1) children learn language through social interaction; (2) children learn by reading and writing whole and meaningful texts; (3) language is used for real

purposes and with real audiences; (4) children learn when we emphasize process; (5) children need time and choices for language learning; and (6) language learning involves risk-taking. (25 references)

ED314756
Computers in the English Literature Classroom.
Lipton, Arlene, Ed.; And Others
New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.
1989, 236p.
Available from: Curriculum/Sales Unit, Division of Computer Information Services, Room 310, Gravesend Neck Rd. and E. 22 Street, Brooklyn, NY 11229.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Computer Uses in Education; *English Curriculum; *Literary Genres; *Literature Appreciation

This manual provides a relevant resource for English literature teachers who wish to take advantage of the extensive library of computer software materials available to expand and strengthen classroom instruction, as well as use alternative methodology. The manual presents selected lesson plans which facilitate the integration of computer-based instruction with the regular methods practiced by teachers. These plans not only indicate the features of the software, but also represent a sharing of ideas on its applications by teachers who have had successful experiences with computers and enriching concepts and skills in the literature classroom. The lessons in the manual (structured around the elements of the short story, the novel, plays, and tales, myths, and fables) are intended as a reference and guide, not as a sequential course. Appendixes contain information about software duplication guidelines, copying public domain disks for MS DOS and Apple computers, and lists of software and literary works used in this manual.

ED315782
Keyboarding, Word Processing, and Middle School Language Arts: A Bibliography.
Morrow, Jean
7 Mar 1990, 9p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Bibliography (131)
Major Descriptors: *Keyboarding (Data Entry); *Word Processing; *Writing (Composition)

This 64-item bibliography focuses on the effect of keyboarding on middle school students' composition writing, using word processing. The bibliography (which surveys selections dating from 1956 through 1989) includes those studies describing the feasibility of teaching touch typing keyboarding skills to middle school students, the value of acquiring this skill, and the place of the computer and word processing programs in the elementary school language arts program. Additionally, studies that have attempted to measure the effect of word processing on middle school students' writing performance, studies of students' attitudes toward computers and writing, and studies that have attempted to validate holistic scoring methods for qualitative assessment of writing ability are included.

ED314755
Computers in the English Classroom.
Scioli, Frances; And Others
New York City Board of Education, Brooklyn, N.Y. Division of Curriculum and Instruction.; New York City Board of Education, Brooklyn, NY. Office of Technology.
1987, 136p.
Available from: Curriculum Production Unit, Office of Curriculum Development and Support, Room 613, 131 Livingston St., Brooklyn, NY 11201 ($17.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *English Curriculum; *Writing Processes

Intended to provide help for teachers and supervisors in using computers in English classes as an enhancement of the instructional program, this guide is organized in three parts. Part 1 focuses on the many management issues related to computer use. This section of the guide presents ideas for helping students with limited keyboarding skills as well as those who must share a computer with other students. Additional lesson plans are provided to demonstrate the variety of ways in which computers can be used to support and extend English curricula. Part 2 of the guide addresses the issues of the kind

of information teachers and students need before using computers in their classes. Suggestions and lessons for connecting the writing process to computer use and techniques for using the computer to enhance instruction in literature are also included. Part 3 presents topics for English department conferences designed to introduce teachers to computer use in their classes, and provides suggestions for ways in which teachers can incorporate computers in their personal and professional activities. Appendixes include: a computer repair form, a list of relevant copyright laws, software evaluation guidelines, a list of resources for technical assistance, a glossary of computer terms, guidelines on copying public domain diskettes for the Apple IIe, Apple Plus and the IBM/Tandy, and tips on caring for your diskettes.

ED316881
Computers in English/Language Arts. Teaching Resources in the ERIC Database (TRIED) Series.
Sorenson, Sharon
ERIC Clearinghouse on Reading and Communication Skills, Bloomington, IN.
1990, 86p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
Available from: ERIC Clearinghouse on Reading and Communication Skills, Indiana University, Smith Research Center, Suite 150, 2805 E. 10th St., Bloomington, IN 47408-2698 ($12.95 plus $2.00 per book postage and handling).
EDRS Price: MF01/PC04 plus postage.
Document Type: Teaching Guide (052); Bibliography (131); ERIC Product (071)
Major Descriptors: *Class Activities; *Computer Assisted Instruction; *English Instruction; *Language Arts; *Lesson Plans; *Teacher Developed Materials
Designed to tap the rich collection of instructional techniques in the ERIC database, this compilation of lesson plans offers practical suggestions for incorporating computers into the English/language arts classroom at both the elementary and secondary level. Because many teachers and administrators are using computers for the first time, the first section of the TRIED offers guidelines on the sequential organization of word-processing skills, software selection, class organization, desktop publishing, and a variety of other considerations for the effective integration of computers into the instructional program. The second section of the TRIED provides lessons using the computer in elementary language arts classes. The final section of the TRIED offers lessons for English teachers to use with their computer resources. A 47-item annotated bibliography of related resources in the ERIC database is attached.

ED314754
Infusing Critical Thinking Skills into the Middle School English Classroom.
Walker, Bernard A., Ed.; Klein, Dorothy, Ed.
New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.; New York City Board of Education, Brooklyn, N.Y. Division of Curriculum and Instruction.
1988, 270p. Computer drawings, pages 235-241, will not reproduce well.
Available from: Curriculum/Sales Unit, Division of Computer Information Services, Room 313, Neck Rd. and E. 22nd St., Brooklyn, NY 11229 ($17.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Book-Product Review (072); Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Critical Thinking; *Microcomputers; *Thinking Skills

Intended for teachers and supervisors, this guide offers a working knowledge of current approaches to the direct application of the computer to the classroom. The guide demonstrates the many ways in which English departments can use microcomputers to assist teachers in teaching middle school English critical thinking skills topics. The guide is divided into 77 topics (such as analogies, genre, dictionary skills, report writing, and sequencing details). The lesson plans for each topic not only support and enrich the teaching of the content of the curriculum but also encourage and improve student investigation. Provided in the guide are specially designed modules to train students for standardized writing and reading tests. Appendixes list: the Apple Picture Disks, the MS DOS Picture Disks, and a Glossary of Selected Critical Thinking Terms. Software Duplication Guidelines, Copying Public Domain Diskettes

for MS DOS and the Apple II, tips on caring for your diskettes and sources to contact for more help are also attached.

Mathematics

ED309977

A Review of Selected Microcomputer Software Packages with Lessons for Teaching Mathematics Grades 8-12. Volume 3. A Curriculum Development Project of the Project To Increase Mastery of Mathematics and Science (PIMMS).

Cetorelli, Nancy; And Others

Wesleyan University, Middletown, CN.

Apr 1989, 147p.; For volume 1 see ED 302 423; for volume 2 see ED 302 424.

Sponsoring Agency: Connecticut State Board of Higher Education, Hartford.; Connecticut State Department of Education, Hartford.

EDRS Price: MF01/PC06 plus postage.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Geometry; *Mathematical Concepts; *Mathematics Materials; *Secondary School Mathematics

The purpose of this project is to help teachers of mathematics use the computer to aid the teaching and learning of many mathematical concepts in a meaningful way. To this end, commercially available software packages are described which are versatile, cost effective, and easy to use. A review and several lessons, each including homework exercises, have been written for each package and are presented in ready-to-use form. Chapter 1, "The Factory," presents four lessons simulating an assembly line. Chapter 2, "Gears: Strategies in Problem Solving," contains four lessons of puzzle building and solving. Chapter 3, "Building Perspective," provides four lessons for developing visual thinking skills (spatial perception and spatial reasoning). Chapter 4, "The Geometric Supposer: Triangles," includes lessons on random points of triangles, medians of a triangle, and Heron's formula. Chapter 5, "The Geometric Supposer: Quadrilaterals," offers two lessons about areas of parallelograms and quadrilaterals. All five software packages reviewed are published by Sunburst Communications.

ED309993

How To Use Conjecturing and Microcomputers To Teach Geometry.

Chazan, Daniel; Houde, Richard

National Council of Teachers of Mathematics, Inc., Reston, VA.

1989, 56p.

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.

Report No: ISBN-0-87353-279-1

Available from: National Council of Teachers of Mathematics, 1906 Association Dr., Reston, VA 22091 ($5.00; members, bookstores, or orders of 10 or more, less 20%).

Document not available from EDRS.

Document Type: Project Description (141); Teaching Guide (052)

Major Descriptors: *Computer Software; *Geometry; *Mathematics Instruction; *Mathematics Materials; *Microcomputers; *Secondary School Mathematics

This book describes how teachers have taught students to behave like working mathematicians who conjecture and prove within a community of learners through the use of microcomputers and the "Geometric Supposers" software. The first section discusses the definition and importance of the conjecture, describes inquiry skills and understandings students should develop, and argues against seven commonly accepted myths. The second part answers questions typically asked by teachers about: (1) student's conjecturing; (2) curriculum; (3) ways to merge conjecturing into what students are already doing; (4) laboratory sessions including planning, setting expectations, guiding students as they explore, and evaluating laboratory work; (5) classroom discussions after the laboratory; (6) traditional laboratory sessions; and (7) whole-group exploration. The third part discusses some questions to be considered by the school community, students, and teachers before using a computer tool. A hypothetical introductory lesson with the Supposers is appended.

ED317170

Progress Reports Improve Students' Course Completion Rate and Achievement in Math Computer-Assisted Instruction.

Clariana, Roy B.; Smith, Lana J.

8 Nov 1989, 10p. Paper presented at the Annual Meeting of the Mid-South Educational Research Association (18th, Little Rock, AR, November 8-10, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Academic Achievement; *Attendance; *Computer Assisted Instruction; *Feedback; *High Risk Students

This study was conducted to determine the effect on achievement and attendance of providing students with computer assisted instruction (CAI) progress reports. Subjects included 105 at-risk eleventh graders in a remedial program funded by Holiday Inn. In a 5-week period during the summer, subjects were required to attend 5 CAI instructional sessions delivered by a WICAT S-300 computer system. Subjects studied mathematics, language, and reading CAI lessons. They were randomly assigned to either the report or the no-report group. Reports were provided individually, and the no-report group was unaware of the availability of reports. Math calculation tests served as the achievement dependent variable. Course completion served as the attendance dependent variable. Achievement data ANOVA revealed a significant difference between the report and no-report groups. Analyses of attendance data revealed that providing students with reports increased course completion rates across all levels of ability and locus of control. This study provides empirical support for the often advised practice of providing students with CAI progress reports. (2 references)

ED313250

An Evaluation of an Innovative Use of Computers and Volunteers in 7th Grade Math Instruction.

Harris, Bruce R.; Harrison, Grant

Nov 1987, 34p. Paper presented at the Annual Meeting of the California Educational Research Association (San Jose, CA, November 1987).

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Mathematics Achievement; *Mathematics Instruction; *Secondary School Mathematics; *Volunteers

This paper summarizes a formative evaluation of a developmental project designed to maximize the potential use of computers in mathematics instruction through the use of volunteers. The project was conducted using a 7th-grade class at an intermediate school in Utah. Data were analyzed for 12 students in a special class for students not having the necessary basic mathematics skills to enroll in a regular class. Students used math computer lab twice a week. The volunteers determined what mathematics skills each student needed to practice by referring to the student files, determined what software program would be appropriate for the student, and managed all the necessary student data. Both quantitative and qualitative data were analyzed for: (1) achievement; (2) attitude about mathematics; (3) mathematics anxiety; (4) study habits; (5) positive reinforcement; and (6) individual help from an adult. Qualitative data collected through personal interviews, volunteer tutor activity sheets, and field notes were analyzed to identify participants' perceptions of the strengths and weaknesses of the project.

ED319594

Teaching and Learning about Graphing through Computer-Assisted Problem Solving: Issues in the Design and Interpretation of Graphs, the Design and Use of Educational Software, and Classroom Research Methodology.

Jackson, David F.; And Others

Apr 1990, 256p. Paper set presented at the Annual Meeting of the National Association for Research in Science Teaching (63rd, Atlanta, GA, April 8-11, 1990).

EDRS Price: MF01/PC11 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Graphics; *Computer Software; *Computer Software Development; *Graphs; *Secondary School Mathematics

Recent research has demonstrated the promise of graphing software as an aid to teaching graphs in two content areas: line graphs of aspects of motion and graphs of algebraic functions. This study attempted to generalize the idea of computer-assisted graphing to include the use of several kinds of graphs to solve a wider range of problems. A unit on graphical data analysis comprising seven class sessions was developed for secondary school students. Three sessions were devoted to didactic teaching aimed at familiarizing the students (1) with reading and using graphs and (2) with the capabilities of the software. Three sessions were devoted to guided practice in graphical data analysis in the context of problem sets. The final class session was devoted to a paper-and-pencil, free-response test, designed to correspond to the task environment similar to that of the computer problem-solving sessions. The research methodology consisted of observations of students' work and spontaneous interviews. The

graphing software included a facility which automatically recorded behavioral trace data of the students' actions during the problem solving sessions. Student data were analyzed in two major ways: sequence matching and pattern matching; results of the analysis are presented in detail. Titles of the individual papers in this set are as follows: "Teaching the Design and Interpretation of Graphs through Computer-Aided Graphical Data Analysis" (B. J. Edwards, D. F. Jackson, C. F. Berger); "The Design of Software Tools for Meaningful Learning by Experience" (Jackson, Edwards, Berger); and "Using Technology To Interpret Large-Scale Complexity: The Use of Scientific Sequence Analysis Algorithms in Research on Computer-Assisted Problem Solving" (Jackson, Berger).

ED316554

A Computerized Adaptive Mathematics Screening Test: A Pilot Study.

McBride, James R.

Nov 1989, 9p. Paper presented at the Annual Meeting of the California Educational Research Association (Burlingame, CA, November 16-17, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Adaptive Testing; *Computer Assisted Testing; *Elementary School Students; *Mathematics Achievement; *Screening Tests

A pilot study of a computerized adaptive test of mathematics achievement was conducted in May and June 1989 in selected schools of the San Diego Unified School District. The study evaluated the usefulness of the test for determining eligibility for Chapter 1 programs in mathematics. The test was a prototype battery of three adaptive tests: (1) Concepts of Number; (2) Computation; and (3) Applications. It was designed for Apple series computers for administration to students in grades 4 through 7. Each student took three 5-item adaptive tests. The pilot study of the developed test, the Stanford Adaptive Math Screener, involved 1,709 students; 1,504 also took the Comprehensive Test of Basic Skills for comparison. Overall, the eligibility determinations made using the two tests were in agreement in 80.5% of the 1,504 cases. Agreement varied from 78.6% in grade 5 to 82.3% in grade 7. The results indicate that, despite its short length, the Stanford Adaptive Math Screening Test is suitable for use in the San Diego Unified School District. Five tables present comparisons of the two tests.

ED320775

Does the "Supposer" Improve Problem Solving in Geometry?

McCoy, Leah P.

1990, 7p. Paper presented at the Annual Meeting of the Eastern Educational Research Association (Clearwater, FL, February 14-17, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Software; *Geometry; *Mathematics Instruction; *Mathematics Skills; *Problem Solving; *Secondary School Mathematics

Many educators recommend the "Geometric Supposer" as exemplary software. This study compared the achievement of one high school class that used the software and a similar class that did not. The treatment class used the software once every 2 weeks throughout the school year. The SRA Achievement Test was used as a pretest and the Houghton-Mifflin Modern Geometry Test was used as a posttest. Four separate (Analyses of Covariance) ANCOVAs were calculated to determine the effect of the treatment on total geometry achievement, lower level items, application items, and higher level items of the posttest. The treatment class scored significantly higher on all except the lower level items. Traditional teaching methods seemed to address lower level knowledge and comprehension.

ED321148

A Sampling of Microcomputer Software That Could Be Used in Teaching Missouri LINC Math Access Skills. Vocational Math Software Project. Missouri LINC Module.

Missouri University, Columbia. College of Education.

Jun 1989. 12p. For related documents, see ED 321 126-137, ED 321 138-143, and ED 321 144-149.

Available from: Missouri LINC, University of Missouri, 401 East Stewart Road, Columbia, MO 65211 (free).

EDRS Price: MF01/PC01 plus postage.

Document Type: Directory (132)

Major Descriptors: *Courseware; *Mathematical Applications; *Mathematics Skills; *Special Needs Students; *Vocational Education

Target Audience: Teachers; Practitioners

This resource guides assists vocational education teachers of special needs students in locating software that teaches mathematics skills in a vocational context. An introduction explains how the guide was developed and how to use it. The guide is organized by specific math skills: readiness; whole numbers; fractions; decimals; discount, interest, and percentage; and measurement. For each skill, the following information is provided: one or more objectives, software program names listed by type of instructional approach (tutorial, drill and practice, educational games, and teacher tools), and publisher. The last page provides publishers' addresses and telephone numbers.

ED316398

Computers in Fundamental Mathematics.

New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.

1988, 350p.

Available from: New York City Board of Education Curriculum Production Unit, Office of Curriculum Development and Support, PS 206, Room 310, Neck Road and E. 22 Street, Brooklyn, NY 11229.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Courseware; *Mathematical Concepts; *Mathematics Materials; *Secondary School Mathematics

This manual provides a resource for mathematics teachers who wish to take advantage of the extensive library of computer software materials available to expand and strengthen classroom instruction. Classroom management procedures, software duplication guidelines, copying procedures of diskettes for MS DOS and Apple II computers, and methods for managing diskettes are described. Included are 109 classroom activities for teaching mathematical concepts using computers. The aim, objectives, vocabulary, materials, preparation, motivation, development, application, summary, and homework are provided for each activity. Activities are classified into the following categories: (1) Numbers and Numeration; (2) Addition; (3) Subtraction; (4) Multiplication; (5) Division; (6) Fractions; (7) Decimals; (8) Geometry; (9) Signed Numbers; (10) Measurement; and (11) Data and Graphing. A list of 32 software programs used in this guide is presented.

ED315317

Sample Computer Applications for the High School Mathematics Classroom. Selected Topics—Level One.

New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.

1988, 215p.

Available from: Curriculum Production Unit, Office of Curriculum Development and Support, PS 206, Room 310, Neck Road and E. 22 Street, Brooklyn, NY 11229 (contact for price).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Mathematical Concepts; *Mathematics Materials; *Secondary School Mathematics

This manual provides a relevant resource for mathematics teachers who wish to take advantage of the extensive library of computer software materials available to expand and strengthen classroom instruction. Classroom management procedures, software duplication guidelines, procedures for copying diskettes for MS DOS and Apple II computers, and methods for maintaining diskettes are described. Included are 59 classroom activities for teaching mathematical concepts using a computer. Included for each of the activities are: (1) the aim; (2) objectives; (3) vocabulary; (4) materials; (5) preparation; (6) motivation; (7) development; (8) application; (9) summary; and (10) homework. A list of 37 software items used in this guide is presented.

ED312159

Integrating Computer Software into the Functional Mathematics Curriculum: A Diagnostic Approach.

Prince George's County Public Schools, Upper Marlboro, MD.

1989, 891p. Produced by the Project: Effective Computer Instruction for Effective Special Education.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF06/PC36 plus postage.

Document Type: Instructional Material (051); Test, Questionnaire (160) Major Descriptors: *Computer Software; *Mathematics Instruction; *Mathematics Skills; *Mild Mental Retardation; *Moderate Mental Retardation; *Secondary School Mathematics

This curriculum guide was written to provide information on the skills covered in the Maryland Functional Math Test (MFMT) and to outline a process which will allow teachers to fully integrate

computer software into their instruction. The materials produced in this directory are designed to assist mild to moderately handicapped students who will take the MFMT, but may also be helpful to regular education students who are experiencing difficulty with the test. The first section, "Domain Directory," lists 30 objectives divided into seven domains on the MFMT. The content scope, question format, teaching strategy, vocabulary, common errors, and task analysis are provided for each of the objectives. The second section, "Assessment Materials," contains tests, answer keys, and skill sheets. The skill sheets are organized by domains, corresponding objectives, and skills. The last section, "Software Materials," provides the software matrices relating specific skills to software programs and a summary reviewing the programs. Appendices include: (1) "MFMT Vocabulary List"; (2) "Student Progress Sheet"; (3) "Computer Software"; (4) "Suggested Assessment Modifications"; (5) "Guidelines for Parents"; (6) "Additional Resources and Supplementary Materials"; and (7) "MFMT List of Domains, Objectives, and Skills."

ED317423

Effects of a Computer Assisted Remediation Program on Basic Skills Mathematics Achievement, Academic Self-Concept, and Locus of Control of Students in a Selected Dropout Retrieval Program in an Urban Setting.

Reglin, Gary L.

1988, 90p. Requirements for Ed.D., University of Florida.

EDRS Price: MF01/PC04 plus postage.

Document Type: Research Report (143); Dissertation (041)

Major Descriptors: *Computer Assisted Instruction; *Locus of Control; *Mathematics Skills; *Remedial Mathematics; *Secondary School Mathematics; *Self Concept

The purpose of this study was to determine the effects of a computer assisted remediation program on basic skills mathematics achievement, academic self-concept, and locus of control of students in a dropout retrieval program. A nonrandomized pretest-posttest experimental design was used to compare students from urban settings in two groups. Students in the experimental group participated in 12 weeks (60 sessions), 50 minutes per day, of Individualized Manpower Training System (IMTS) instruction plus a 10-minute daily period of computer assisted instruction (CAI) in mathematics. The only difference between the experimental and control groups was that the experimental group received 10 minutes of CAI in mathematics daily and the control group received 10 minutes of IMTS instruction in mathematics daily. Analysis of covariance indicated no significant difference on any dependent variable for type of instruction and the interaction between sex and type of instruction. The IMTS program with or without CAI had a more significant impact, by t-test, on males' academic self-concept and locus of control.

ED317171

A Study of How Metropolitan Secondary Mathematics Teachers Are Integrating Microcomputers into Their Classrooms.

Schultz, Charles W.; And Others

8 Nov 1989, 25p. Paper presented at the Annual Meeting of the Mid-South Educational Research Association (18th, Little Rock, AR, November 8-10, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Integrated Curriculum; *Microcomputers; *Teacher Attitudes

A study of how teachers integrate the computer into the mathematics curriculum was conducted using a sample of 200 secondary mathematics teachers from 54 different schools in an urban school district. The design was descriptive in nature and consisted of a mail survey collecting data on: (1) the backgrounds of the teachers; (2) how teachers used computers in the mathematics classroom and the frequency of use; (3) the environments in which computers were used; (4) attitudes of mathematics teachers toward using computers for instruction as well as toward the available mathematics software; and (5) what teachers felt were the advantages and disadvantages of using computers in the mathematics classroom. Findings indicate that, although teachers seem to have accepted the usefulness of the computer as a tool for mathematics instruction, the task of integrating computers into the curriculum

has just started. Recommendations include matching software to curriculum objectives, acquainting teachers with available mathematics software, and making computer laboratories more accessible for both teachers and students. Data are presented in seven tables. (13 references)

Physical Education

ED311024

Dance Technology. Current Applications and Future Trends.

Gray, Judith A., Ed.

American Alliance for Health, Physical Education, Recreation and Dance, Reston, VA. National Dance Association.

1989, 143p.

Available from: American Alliance for Health, Physical Education, Recreation, and Dance Publications, P.O. Box 704, 9 Jay Gould Court, Waldorf, MD 20604 ($20.00 plus $2.50 shipping and handling).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Project Description (141); Book (010); Collection (020) Major Descriptors: *Computer Graphics; *Computers; *Computer Simulation; *Dance

Original research is reported on image digitizing, robot choreography, movement analysis, databases for dance, computerized dance notation, and computerized lightboards for dance performance. Articles in this publication are as follows: (1) "The Evolution of Dance Technology" (Judith A. Gray); (2) "Toward a Language for Human Movement" (Thomas W. Calvert); (3) "A Computational Alternative to Effort Notation" (Norman I. Badler); (4) "Programming a Robot to Dance" (Margo K. Apostolos); (5) "The Use of a Motion Detector in Dance Instruction and Performance" (Alice Trexler, Ronald K. Thornton); (6) "Kahnotation: Computerized Notation for Tap Dance" (Stanley Kahn); (7) "A Computerized Procedure for Recording and Analyzing Dance Teacher Mobility" (Judith A. Gray); (8) "A Computer Program for the Entry of Benesh Movement Notation" (Fred M. Hagist, George Politis); (9) "A Computer-Assisted Investigation into the Effects of Heel Contact in Ballet Allegros" (Paula A. Dozzi); (10) "A Computerized Methodology Using Laban Movement Analysis To Determine Movement Profiles in Dance" (Mary A. Brennen, and others); (11) "The Computerized Production of Educational Material on Benesh Movement Notation" (Rhonda S. Ryman, Robyn Hughes-Ryman); (12) "Absolute (0,0,0): Dance Influenced by Technological Environments and Computers" (Dianna L. Petty); (13) "Capturing and Processing Dance Images with Computers" (Judith A. Gray); (14) "Computerized Lighting Design for Dance: An Interview with David Elliot" (Judith A. Gray); and (15) "The University's Role in the Future of Dance Technology" (Judith A. Gray).

Programming

ED319468

Coding Language vs. Authoring System: To Code or Author—That Is the Question.

Kendra, Lawrence M.; Clavner, Jerry B.

Jun 1990, 15p. Paper presented at the National Education Computing Conference (Nashville, TN, June 25-27, 1990. Coding for computer programs (p.10-14) will not reproduce adequately.

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Position Paper (120)

Major Descriptors: *Authoring Aids (Programing); *Computer Assisted Instruction; *Computer Software Development; *Teacher Developed Materials

Drawing from experiences at Cuyahoga Community College, this paper offer guidance on the use of storyboard packages and authoring languages to develop interactive instructional materials. Introductory comments reveal that the greatest use of computers in courses other than computer and information sciences is still in drills, tutorials, writing composition, and simulations; and that there is little research-based data on the effectiveness of computers as a method of instruction or on the time, energy, and resources required to prepare to use computers in instruction. Next, the paper lists several requirements for interactive instructional materials, e.g., the lesson must extend from or reinforce classroom activities; a three-way, ongoing, systematized interaction must take place among the student, instructor, and material in the computer; the material available to the student must give clear fail-safe instructions, use a developmental/incremental process toward mastery of concepts, and draw forth questions that the student will bring to the instructor. Tips about storyboard lesson planning are presented next, suggesting

that the approach is best suited to the visually oriented, that it often requires considerable tinkering and time, and that it tempts the instructor to include too many sub-menus. Next, authoring systems, which are designed for instruction based on lecturing-demonstrating-exampling, are discussed and five drawbacks are identified. Attachments include outlines of the curriculum and lesson development processes, and a basic language program for an employment theory lesson.

Reading

ED312608
Reading Comprehension and the Computer.
Boyer, Nancy W.
May 1984, 29p. M.S. Practicum, Nova University.
EDRS Price: MF01/PC02 plus postage.
Document Type: Research Report (143); Practicum Paper (043)
Major Descriptors: *Computer Assisted Instruction; *Reading Comprehension; *Reading Improvement; *Reading Instruction

A practicum study was conducted to raise the reading comprehension level of students at least one grade level by using Computer-Assisted Instruction (CAI), and to determine the kind of student who would most benefit by the use of CAI. A control group of 35 students and three experimental groups of 19 computer students, all in fourth or fifth grade, received normal classroom instruction in reading. The 19 students received extra computer training in reading comprehension for a period of 3 months. CAI students used original teacher-developed software entitled "Reading Comprehension" and the commercial reading program, "Our Weird and Wacky World" by Educational Activities. All students were tested before and after the use of the computers. Results of those using computers showed an increase when comparing the test scores. The overall gain of CAI students was 1.5 years. It was recommended that this program of study be extended over a 10-month school year and that the curriculum be expanded to include an adjustable program to encourage faster reading along with the increase in comprehension. (Seven appendixes containing graphs, reading sources, student opinions, and a sample parent letter are attached.)

ED317966
The Teacher Is a Variable in Reading Computer-Based Instruction.
Clariana, Roy B.
May 1990, 14p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Reading Rate; *Teacher Behavior; *Teaching Styles; *Time on Task

A study examined the effects of different teacher styles on one variable related to classroom learning production. Subjects, 34 first grade middle- and lower-middle income students in a Catholic school matched by ability and randomly assigned to either an authoritarian, systematic, ordered, and controlling teacher or to a "laissez faire" teacher, were timed as they completed 20 computer-based reading instruction lessons. Results indicated that high-ability students in the less structured classroom were working at a lower rate than their ability would suggest and that this effect was not observed in the highly structured classroom. Findings suggest that teaching style affects the lesson completion rate of elementary students using computer-based lessons. (Three figures and two tables of data are included.)

ED321546
A Collaborative Computer-Assisted Reading and Writing Project: Dynamic Stories.
Lebauer, Roni
[May 1990], 18p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Assisted Instruction; *English (Second Language); *Reading Skills; *Teaching Methods; *Writing (Composition)

A dynamic story is a story in which the reader must make choices about the direction the story will take at pivotal points in the plot. Because of their interactive nature, dynamic stories may be used to effectively teach English as a Second Language (ESL). Existing dynamic stories, however, are usually inadequate for this purpose. In book form, they involve too much page flipping, while those stories available on computer software are either aimed at a very young audience, or use a lexicon that

non-native English speakers would neither know nor need to know. A better way to employ these stories in the ESL classroom is to have students create the stories. By writing such stories, students improve their lexical and grammar skills, and learn about the process of writing while gaining confidence in their English abilities. A method is described here for the classroom creation of computer-based dynamic stories using commercially available, user-friendly software. One example of this method is detailed, and several story "openings" are appended.

ED312629
Using Microcomputers for Teaching Reading in the Middle School. Fastback 296.
Potter, Rosemary Lee
Phi Delta Kappa Educational Foundation, Bloomington, Ind.
1989, 47p.
Available from: Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402-0789 ($.75 members; $.90 nonmembers).
EDRS Price: MF01/PC02 plus postage.
Document Type: Non-Classroom Material (055); Evaluative Report (142)
Major Descriptors: *Computer Assisted Instruction; *Middle Schools; *Reading Instruction; *Reading Strategies
Based on the experiences of using computer-assisted reading instruction in middle schools, this pamphlet proceeds from the conviction that the use of a computer helps middle school students improve their reading. Following an introduction, the booklet is in seven sections: (1) Why Use Computers in Middle School Reading? (2) Software—The Heart of the Matter; (3) Managing Computer-Assisted Instruction in the Reading Classroom; (4) The Reading/Writing Connection: Word Processing; (5) Using Computers for Middle-School Remedial Reading; (6) Some Other Computer Considerations; and (7) Resources.

ED313024
Effects of Computer-Assisted Instruction on Reading and Mathematics Achievement of Chapter 1 Students.
Zollman, Alan; And Others
31 May 1989, 19p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Individualized Instruction; *Instructional Effectiveness; *Intermode Differences; *Mathematics Achievement; *Reading Achievement
Two parallel studies were conducted to determine whether students' achievement in reading and/or mathematics would be affected by the use of Education Systems Corporation (ESC) Software for Chapter 1 students. Students in the experimental groups used the software twice a week during a period of one school year, with 561 Chapter 1 students in grades 2 through 6 taking part in the reading study, and 420 students in grades 4 through 6 participating in the mathematics study. Approximately one-half of the students included in the reading study also participated in the mathematics study. The Metropolitan Achievement Test (MAT) Mathematics and Reading Surveys were administered using a pretest posttest design to determine any differences between the control group and the experimental group in each study. An analysis of the MAT Reading Survey and MAT Mathematics Survey results showed statistically significant positive gains for the Chapter 1 students who worked with the ESC software, and that these gains were significantly greater than those of students in the control group. (12 references)

Science

ED318150
"What Is the Meaning of..." Finding Links between Science and Literacy.
Goldman, Shelley V.; And Others
Mar 1989, 10p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 1989).
EDRS Price - MF01/PC01 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Networks; *Deafness; *Literacy Education; *Reading Skills; *Science Instruction; *Writing Skills

The paper reports on the application of a computer local area network and software to develop both literacy skills and science content knowledge in 15 deaf students. The network approach allows for interaction between a large number of students and the teacher both within and outside the context of the lesson and utilizes support programs to allow students to participate in group exercises. The network was used with an earth science instructional program which requires extensive reading and writing as students communicate with each other and the teacher and as they complete the instructional tasks. Preliminary evaluation indicates increased student time on literacy activities. Analysis of electronic mail messages and instructional responses allowed teachers to obtain more reliable information about student instructional needs. Includes four references.

ED311883

Relative Effectiveness of Corrective and Noncorrective Computer Feedback on Cognitive Learning of Science.

Hodes, Carol L.

May 1984, 84p. Master's Thesis, Pennsylvania State University.

EDRS Price: MF01/PC04 plus postage.

Document Type: Thesis (042); Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Feedback; *Instructional Design; *Learning Processes; *Sex Differences

This study examined the relative effectiveness of different types of computer feedback (both corrective and noncorrective) on student achievement. A total of 41 students in grades 9 and 10 comprised the two treatment groups. The subjects all interacted with a computer program written by the researcher. The first treatment group received corrective feedback while the second received noncorrective feedback. Pretests, posttests, and post-posttests were administered to all students. There was no significant difference between posttest scores when compared by ANOVA. There was, however, a pattern of significance when the groups were redefined by gender. The females receiving noncorrective feedback had significantly lower posttest scores when compared to the male subjects from either treatment group. This was interpreted as a reflection of gender bias in the schools, since computational ability was needed for the testing and differences in both math achievement scores and attitude towards math still exist between males and females. Close attention should be paid to the type of feedback that students receive since it affects achievement. Since research supports the existence of gender bias in our educational system, computer-assisted instruction (CAI) might be effectively used to overcome this bias by removing the personality of the teacher from instruction, therefore removing gender bias from the schools. Consequently the future of CAI may be the realization of educational equity for all students. A sample run of both treatments and the testing instruments are appended. (37 references)

ED320532

Using Computer Technology To Enhance Middle School Science.

Jermanovich, Trudy

1989, 132p. Ed.D. Practicum, Nova University.

EDRS Price: MF01/PC06 plus postage.

Document Type: Practicum Paper (043); Non-Classroom Material (055); Test, Questionnaire (160)

Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Computer Networks; *Laboratories; *Science Instruction; *Student Evaluation

This practicum was designed to encourage middle school science teachers to utilize computer technology as an enhancement in order to provide students with an additional means of addressing their basic skills areas. The primary goals were to provide information on the ease of utilization of appropriate computer-managed software through networking and to formulate a guide to using this type of software with students. In addition, inservice workshops were provided on the use of laser disc technology. A networking environment was established with a schedule providing access for a large number of students in a computer-assisted instruction (CAI) laboratory situation. Teachers were able to inform a laboratory manager of the skills that students would use. The computer-managed instruction (CMI) system kept track of students' scores, and printouts were provided to teachers. A guide on how best to utilize this resource was developed. The results of the practicum were positive, with students, teachers, and parents indicating the success of the use of networked CAI through surveys, increased test scores, and completion of student projects. Laser discs proved more difficult to learn, and use of this technology was limited. Appendixes include survey instruments, project data, a sample printout of student scores as recorded in the computer laboratory, and a handbook for teachers on using CAI/CMI laboratories. (11 references)

ED319379

Microworlds to Macroworlds: Conceptual Transfer and Activity Setting. Technical Report No. 46.

Martin, Laura M. W.; And Others

Bank Street College of Education, New York, NY. Center for Children and Technology.

Dec 1987, 20p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available from: Center for Children and Technology, Bank Street College of Education, 610 W. 112th Street, New York, NY 10025.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Games; *Ecology; *Models; *Teaching Methods

This study examined children's application of ecological concepts under conditions that were similar to or different from the conditions under which they first applied the concepts while playing a microcomputer-based ecosystems game. Two task dimensions were studied: (1) the form in which the information was presented (iconic or symbolic); and (2) the interactional setting in which children worked with the conceptual material (alone or in small groups). Subjects were 30 students from a mixed fifth-sixth grade class in a New York City public school; they were randomly assigned to two treatment groups. Baseline information about the children's attitudes and knowledge was collected. Following a 6-week experimental phase, children's applications of concepts from the microworld game were examined during individual paper-and-pencil tests involving two-dimensional images, small group discussions using real objects, and individual paper-and-pencil worksheets in an out-of-school setting. Results showed transfer of certain microworld concepts in some settings and application of some teacher-taught material. These conceptual gains were most clearly seen when children worked in small group settings. (16 references)

ED314250

New Information Technology Directions for American Education. Improving Science and Mathematics Education. Final Report.

Melmed, Arthur S.; Burnham, Robert A.

New York University, NY. School of Education, Health, Nursing, and Arts Professions.

Dec 1987, 77p. Appendix 2 contains small print and may not reproduce well.

Sponsoring Agency: National Science Foundation, Washington, DC.

EDRS Price: MF01/PC04 plus postage.

Document Type: Evaluative Report (142); Position Paper (120)

Major Descriptors: *Computer Oriented Programs; *Futures (of Society); *Information Technology; *Mathematics Instruction; *Science Instruction; *Technology Transfer

This report is an analysis of the findings of four workshops exploring the ways interactive technology can be considered an option for improving American education after 25 years of research and development. Sections include: (1) "Manpower Needs and School Problems"; (2) "Science and Technology Option"; (3) "Barriers and Strategy"; and (4) "To Move Forward." The first program element aims to seed the development, distribution and maintenance of sophisticated new software for science and mathematics education. The second program element concerns selected large-scale educational trials aimed at demonstrating substantial improvement in science and mathematics education that require radical departure from traditional school arrangements. The third program element concerns strengthening the nation's applied cognitive science capacity, which is necessary to undergird development of a science and technology option over the long run. Teacher preparation and training is touched upon at the close. Summary reports of the four workshops are appended.

ED315319

Computers in the Biology Classroom.

New York City Board of Education, Brooklyn, N.Y. Division of Curriculum and Instruction.; New York City Board of Education, Brooklyn, NY. Office of Technology.

1987, 416p.

Available from: Curriculum Production Unit, Office of Curriculum Development and Support, PS 206, Room 310, Neck Road and E. 22 Street, Brooklyn, NY 11229.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Biological Sciences; *Computer Software; *Computer Uses in Education; *Microcomputers; *Science Activities; *Secondary School Science

The use of computers in classrooms to support and extend instruction is a topic which is being discussed in major educational forums across the United States. Until a few years ago, computer use in schools was the exclusive domain of the mathematics department. Other content areas have now found ways to use computers to enhance their instruction. The purpose of this guide is to give teachers and supervisors a working knowledge of various approaches to enhance pupil learning. It demonstrates some of the many ways in which science departments can use microcomputers to assist teachers in teaching biology. Computers can be used to enhance the learning process by assisting students in recording and categorizing data, formulating conclusions, and conducting experiments. There are 122 activities in this guide. Each activity includes objectives, materials, motivators, development of the lesson, summary, and homework. Some are accompanied by worksheets. Also included is a discussion of classroom management techniques and (in the appendices) a glossary, a diskette care guide, information about copying public domain software, a list of software used in this guide, and a list of five additional school district resource centers in the Greater New York Area.

ED315318

Computers in the Earth Science Classroom.

New York City Board of Education, Brooklyn, N.Y. Division of Curriculum and Instruction.; New York City Board of Education, Brooklyn, NY. Office of Technology.

1987, 159p.

Available from: Curriculum Production Unit, Office of Curriculum Development and Support, PS 206, Room 310, Neck Road and E. 22 Street, Brooklyn, NY 11229.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Software; *Computer Uses in Education; *Earth Science; *Microcomputers; *Science Activities; *Secondary School Science

The use of computers in classrooms to support and extend instruction is a topic which is being discussed in major educational forums across the United States. Until a few years ago, computer use in schools was the exclusive domain of the mathematics department. Other content areas have now found ways to use computers to enhance their instruction. The purpose of this guide is to give teachers and supervisors a working knowledge of various approaches to enhance pupil learning. It demonstrates some of the many ways in which science departments can use microcomputers to assist teachers in teaching earth science. Computers can be used to enhance the learning process by assisting students in recording and categorizing data, formulating conclusions, and conducting experiments. The 36 activities in this guide are organized into four areas: (1) "Matter on Earth"; (2) "The Composition of the Earth"; (3) "The Atmosphere"; and (4) "The Earth in Space." Also included is a discussion of classroom management techniques and (in the appendices) a glossary, a diskette care guide, information about copying public domain software, a list of software used in this guide, and a list of five additional school district resource centers in the Greater New York Area.

ED318642

Weatherlinker.

North Carolina State Department of Public Instruction, Raleigh. Division of Computer Services.; North Carolina State Department of Public Instruction, Raleigh. Division of Science.

1989, 145p.

EDRS Price: MF01/PC06 plus postage.

Document Type: Non-Classroom Material (055)

Major Descriptors: *Computer Networks; *Grade 7; *Meteorology; *Science Materials; *Secondary School Science

Weatherlinker is a unit of curriculum materials designed to enhance the study of meteorological science at the seventh-grade level and to enrich that study through the use of various types of technology. This document consists of a teacher's guide, student handouts, information on telecommunications, and a list of materials that were used by the field sites. Suggested classroom teaching strategies include the use of instructional learning centers, individual activities, and opportunities for small and large group instruction. Topics of instruction include weather stations for observing air temperature, relative humidity, wind, and air pressure; and weather forecasting. Evaluation materials are provided. The telecommunications handbook focuses on the FREDMAILER System available to teachers in the state of North Carolina.

ED320772

An Evaluative Study of a Level One Videodisc Based Chemistry Program.

Sherwood, Robert D.; And Others

1990, 7p. Paper presented at a Poster Session at the Annual Meeting of the National Association for Research in Science Teaching (63rd, Atlanta, GA, April 8-11, 1990).

EDRS Price: MF01/PC01 plus postage.

Document Type: Evaluative Report (142); Conference Paper (150)

Major Descriptors: *Chemistry; *Interactive Video; *Program Evaluation; *Science Materials; *Secondary School Science; *Videodisks

This study evaluated the effectiveness of the use of videodisc technology in a school system. The videodisc "Understanding Chemistry and Energy" (Systems Impact, 1987) having 20 lessons was used in Physical Science classes (grade 9) and Biology classes (grades 10 and 11) in an experimental school. It was designed to be used with a variety of classes especially classes for studying some aspects of chemistry. Printed worksheets and quizzes were also provided to the experimental classes. Because the differences in pre and posttest scores were very large for the experimental group as compared to the control group, items were analyzed by teachers to determine whether they were covered or not during classroom instruction. For the items covered a lot or some during class, there were significant differences between the two groups.

ED314262

The Computer: Time, Space and Spirit—Keys to Scientific Literacy Series.

Stonebarger, Bill

1990, 37p. This is one of a series of 16 booklets written with consultation from the History of Science Department at the University of Wisconsin-Madison. For other booklets in this series see ED 314 259-274. Drawings may not reproduce well.

Available from: Hawkhill Associates, Inc., 125 E. Gilman Street, Madison, WI 53703 ($2.15 each, $1.95 for 10 or more copies of the same title).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Instructional Material (051); Teaching Guide (052)

Major Descriptors: *Computers; *Instructional Materials; *Reference Materials; *Resource Materials; *Science and Society; *Secondary School Science

This booklet about computers considers time, space, and spirit. Time refers to a sense of history; space refers to geography; and spirit referes to life and thought. Several chapters on the history and concepts of computers, a time line related to the concepts, a map of the important geography related to these concepts, a glossary of important terms, and a list of several study suggestions.

ED312134

Software for Aerospace Education. A Bibliography (Second Edition).

Vogt, Gregory L.; And Others

National Aeronautics and Space Administration, Washington, DC. Education Technology Branch.

[1989], 91p.

EDRS Price: MF01/PC04 plus postage.

Document Type: Book-Product Review (072); Bibliography (131)

Major Descriptors: *Aerospace Education; *Computer Software; *Computer Software Reviews; *Databases; *Videodisks

The software described in this bibliography represents programs made available to the National Aeronautics and Space Administration (NASA) Educational Technology Branch by software producers and vendors. More than 200 computer software programs and 12 laser videodisk programs are reviewed in terms of title, copyright, subject, application, type, grade level, minimum system requirements, description, components, features, producer, vendor, and cost. Subject areas covered include: (1) aeronautics; (2) aerospace physics; (3) astronomy; (4) manned space exploration; (5) rocketry; (6) satellites; and (7) science fiction. The last section describes how to use the NASA SpaceLink which is a 24-hour computer information database developed to serve teachers and other educators. Lists of vendors and NASA Teacher Resource Centers are appended.

Social Studies

ED319640
Teaching "Federalist #10": A Lesson Plan for High School Teachers.
Agresto, John
Boston University, MA. National Center for America's Founding Documents.
1989, 18p.
Available from: National Center for America's Founding Documents, School of Education, Boston University, 605 Commonwealth Avenue, Boston, MA ($1.50).
EDRS Price: MF01/PC01 plus postage.
Document Type: Teaching Guide (052); Project Description (141)
Major Descriptors: *Computer Assisted Instruction; *Inservice Teacher Education; *Pilot Projects; *Telecommunications; *United States History

This national pilot project was designed to determine if telecommunications is an effective tool for teacher training and mentoring. The project envisions telecommunications as a means for teachers to have an ongoing dialogue with colleagues and experts worldwide, using a computer network. Teachers access documents and materials, take part in on-line forums, and contribute materials. Seven schools representing six states participated in the first phase of the project with 14 teachers, superintendents, principals, social studies supervisors, and computer coordinators. The evaluation showed respondents felt the project was helpful to them in terms of teacher to teacher mentoring and that computer networking can play an important role in education. The School of Education computer network at Boston University, SCHOLE, which can be accessed with any personal computer equipped with a modem, was used in the project. The five page lesson plan on teaching Federalist #10 that was used in the project is included, along with a description of SCHOLE.

ED310956
From Information to Decision Making: New Challenges for Effective Citizenship. Bulletin No. 83.
Laughlin, Margaret A., Ed.; And Others
National Council for the Social Studies, Washington, DC.
1989, 124p.
EDRS Price: MF01/PC05 plus postage.
Document Type: Non-Classroom Material (055); Project Description (141); Collection (020)
Major Descriptors: *Citizenship Education; *Computers; *Critical Thinking; *Decision Making Skills; *Information Sources; *Social Studies

This bulletin undertakes to provide some ideas about ways social studies teachers may become effective teachers in an Information Age. Several chapters provide practical examples of ways teachers may help young people learn skills, content, and actions needed for citizenship behavior in the future. Other chapters describe resources currently available to help students and teachers gather information and move comfortably into the Information Age. Still other chapters provide an overview of what is in social studies and challenge readers to extend their perspectives and thought to include the future. The chapter titles are: "Educating Students for an Information Age" (M. A. Laughlin); "Using Data in Elementary Social Studies Programs" (R. G. Messick; J. R. Chapin); "Strategic Thinking in Social Studies" (K. A. Koch); "Civic Decision Making in an Information Age" (R. C. Remy); "Using Census Data in Elementary and Secondary Social Studies Programs: A Timely Example" (G. Dailey; L. Engelhardt); "Social Mathematics" (H. M. Hartoonian); "Tools for Social Mathematics" (J. G. Lengel); "Social Problem Solving Using Data Bases" (N. M. Sanders); "School Media Programs in the Information Age" (D. Callison); "Locating and Using ERIC and Other Data-Collection Sources" (C. F. Risinger); "How School Textbook Publishers View the Information Age" (C. S. Moseley); and "Human Dimensions of the Information Age" (M. A. Laughlin; and others).

ED318670
Computers in the American History Classroom.
New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.; New York City Board of Education, Brooklyn, NY. Division of Curriculum and Instruction.
1988, 304p.
Available from: New York City Board of Education, Curriculum Unit, Rm 310, P.S. 206, Neck Road and East 22 Street, Brooklyn, NY 11229 ($17.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)

Major Descriptors: *Computer Assisted Instruction; *History; *United States History

This guide demonstrates the many ways in which social studies departments can use microcomputers to teach U.S. history. Computers can be used to enhance the learning process by assisting students in recording and categorizing data, formulating conclusions, and establishing concepts. This guide is intended as a supplement to existing curriculum materials, presenting possible alternative methods for teaching individual topics. Lesson plans for 104 topics are presented and include the topics of U.S. history from early European contact to the present time, technological developments, foreign policy, government and politics, the Constitution, and map skills. Appendices included are: (1) "The Constitution of the United States of America"; (2) "Amendments to the Constitution"; (3) "Software Used in This Text"; (4) "Software Duplication Guidelines"; (5) "Copying Public Domain Diskettes—MS DOS"; (6) "Copying Public Domain Diskettes—Apple II"; (7) "Caring for Your Diskettes"; and (8) "For More Help...." A two-page questionnaire on use of and satisfaction with the guide is also included.

ED318668

Developing Map Skills Using Computers.

New York City Board of Education, Brooklyn, NY. Division of Computer Information Services.

1989, 240p.

Available from: New York City Board of Education, Curriculum Unit, Room 310, P.S. 206, Neck Road & E. 22nd Street, Brooklyn, NY 11229 ($17.00).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Teaching Guide (052)

Major Descriptors: *Computer Assisted Instruction; *Geography Instruction; *Map Skills

Computer-assisted instruction can be valuable in the teaching and learning of skills associated with the reading and interpretation of maps. The purpose of this manual is to provide teachers with a resource guide for the development of students' map skills and understanding of world geography through the use of a computer. Several suggested procedures for creating and managing a computer laboratory are outlined including ideas for using the equipment before and during the computer lab period. Lesson plans for 67 topics are presented, classified by six sections: (1) "Introduction"; (2) "Map Skills"; (3) "Geography"; (4) "Geography of Africa"; (5) "Geography of Asia"; and (6) "Geography of South America." Appendices include information on computer software and diskette use, and addresses and telephone numbers for additional information.

Vocational Education

ED315562

Microcomputer Use in Technical Education.

Ediger, Marlow

1989, 8p.

EDRS Price: MF01/PC01 plus postage.

Document Type: Position Paper (120)

Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Decision Making; *Problem Solving; *Technical Education

Instructors in technical education need to use diverse methods of teaching to provide for individual differences among learners. Use of microcomputers is particularly appropriate, because such use can impart knowledge as well as develop skills. Three philosophies of computer/software instruction in technical education can be identified: (1) problem-solving procedures in which students identify and attempt to solve problems; (2) measurement-driven instruction (MDI) with its stress upon specific predetermined objectives for student attainment; and (3) decision-making strategies with learners selecting content to acquire in a rather open-ended environment. The problem-solving strategy is recommended, because problem solving is salient in the school curriculum as well as in life. MDI strategies could use subject matter acquired by students to solve life-like problems. Decision-making approaches might well emphasize using software content to solve problems. Thus, decision-making approaches may advocate students choosing, from among alternatives, problems to solve. (15 references)

ED314577

Industrial Electronics and T.V./Computer Repair. COM-LINK. Competency Based Vocational Curricula with Basic Skills and Academic Linkages.

Fagg, Harold

Ocean County Vocational Technical School, Toms River, NJ.

[Jul 1989], 85p. For related documents, see ED 314 556-584.

Sponsoring Agency: New Jersey State Department of Education, Trenton. Division of Vocational Education.

EDRS Price: MF01/PC04 plus postage.

Document Type: Teaching Guide (052)

Major Descriptors: *Competency Based Education; *Computers; *Electromechanical Technology; *Electronic Equipment; *Television Radio Repairers

This competency-based module uses the Ocean County (New Jersey) Vocational-Technical Schools curriculum-infused model for infusing basic skills instruction into vocational education. The model demonstrates the relationship of vocational skills to communication, mathematics, and science. The document begins with a philosophy statement; preface; a table that explains the number of hours required for academic credit in various programs and the number of those hours that are devoted to basic skills and vocational activities; matrices that show in which courses specific basic skills are taught; a list of objectives; and an explanation of student activities. Most pages in the document are tables that describe the relationship of vocational skills to basic skills within the industrial electronics and TV/computer repair program. These pages are organized by instructional unit and the topics within them. For each topic and associated task(s) are listed the theory and basic skills covered. Also listed are the expected student outcomes. The nine instructional units included are: orientation; safety; hand tools; structure of matter; basic electronics; digital electronics; test instruments; computers and PECs; and fluid power systems (hydraulics and pneumatics).

ED309242

Microcomputer Programs for Diversified Occupations Education. A Bibliography.

Florida State University, Tallahassee. Center for Instructional Development and Services.

Apr 1988, 14p.

Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.

EDRS Price: MF01/PC01 plus postage.

Document Type: Bibliography (131)

Major Descriptors: *Career Education; *Career Exploration; *Career Planning; *Computer Assisted Instruction; *Computer Software; *Job Search Methods

This annotated bibliography describes materials available for computer-assisted instruction in career education. The materials are suitable for use by regular, disadvantaged, and handicapped students and by students whose facility in English is limited. These materials may be used for developing tests, testing, reviewing, and vocabulary. The bibliography includes programs for career analysis, career exploration, career assessment, career planning, finding job openings, following up a job lead, completing job applications, interviewing, developing proper job habits, communication, and keeping a job. Some programs can be used to test reading comprehension or help students identify occupations suited to their abilities and personalities. Career exploration for special needs and at-risk students is also included. Entries are presented in alphabetical order. Each entry provides this information: title, date, annotation, system requirements, and availability. Materials for inclusion in the bibiography were located through the Florida Educational Information Service (FEIS), which conducted searches of the Vocational Education Curriculum Materials (VECM) database on Bibliographic Retrieval Service (BRS).

ED309243

Microcomputer Programs for Health Occupations Education. A Bibliography.

Florida State University, Tallahassee. Center for Instructional Development and Services.

Apr 1988, 15p.

Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.

EDRS Price: MF01/PC01 plus postage.

Document Type: Bibliography (131)

Major Descriptors: *Allied Health Occupations Education; *Computer Assisted Instruction; *Computer Software; *Nursing Education

This annotated bibliography describes materials available for computer-assisted instruction in secondary and postsecondary health and allied health programs. The materials are suitable for use by regular, disadvantaged, and handicapped students and by students whose facility in English is limited. The

bibliography includes software programs appropriate for the following areas of health occupations education: orientation to health and public service occupations; exploration of health occupations; practical health skills; principles of wellness; basic X-ray machine operator; cardiopulmonary technology; emergency medical technology (EMT and paramedic); home health aide; medical assisting; medical laboratory assisting; medical laboratory technology; nuclear medical technology; nursing assisting; nursing (associate degree); practical nursing; radiation therapy technology; radiographer; respiratory therapy; respiratory therapy technician; and surgical technology. Citations include teaching guides, interactive tutorials, games, simulations, reviews, and tests. Entries are presented in alphabetical order. Each entry provides this information: title, date, annotation, system requirements, and availability. Materials for inclusion in this bibliography were located through the Florida Educational Information Service (FEIS), which conducted searches of computerized information retrieval systems, specifically the Vocational Education Curriculum Materials (VECM) database on Bibliographic Retrieval Service (BRS) and the Microcomputer Software and Hardware Guide database on DIALOG.

ED309306

Microcomputer Programs for Home Economics Education. A Bibliography.

Florida State University, Tallahassee. Center for Instructional Development and Services.

Jan 1989, 26p.

Sponsoring Agency: Florida State Department of Education, Tallahassee. Division of Vocational, Adult, and Community Education.

EDRS Price: MF01/PC02 plus postage.

Document Type: Bibliography (131)

Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Home Economics; *Microcomputers; *Program Descriptions; *Programed Instructional Materials

This annotated bibliography describes materials available for computer-assisted instruction in home economics. These materials are competency based and may be used with regular, disadvantaged, handicapped, and limited-English-speaking students. All areas of home economics are represented. Materials for inclusion in this bibliography were located through the Florida Educational Information Service, which conducted a search of the VECM (Vocational Educational Curriculum Materials) database on BRS (Bibliographic Retrieval Service). Each entry includes title, date, synopsis, system requirements, and availability.

ED315455

Learning about Equipment from Technical Documentation: A Basic Comprehensible Writing Aid. Final Report. Technical Report No. 31.

Kieras, David E.

Michigan University, Ann Arbor. Technical Information Design and Analysis Lab.

10 Jan 1990, 14p.

Sponsoring Agency: Office of Naval Research, Arlington, VA.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Documentation; *Learning Processes; *Scientific and Technical Information; *Technical Writing

Theoretical and empirical work was conducted on the role of the "mental model," or how-it-works information, in learning to operate equipment. The original project was concerned with empirical and cognitive modeling studies of how people learn to operate equipment from the kind of information contained in technical documentation. The goal was to understand how knowledge about equipment could be presented effectively and how knowledge about the equipment should be conveyed to the reader. These studies were described in prior publications, which are listed in this final report. The second part of the project was a separate line of work on a computerized aid for comprehensible writing, a computer program intended to provide feedback to the writers of technical documents about comprehensibility problems. A general conclusion of the project was that high-quality training on specific procedures is generally superior to training limited to system knowledge. The developed feedback system was sophisticated and fast. Future work on this topic might best be focused on documenting the redundancy and insignificance of much mental model content. The reports and publications of this portion of the project are also listed. Applications of the work of both parts of the project and the problems encountered are summarized.

ED311277
Competency-Based Data Processing. Bulletin No. 1771.
Nicholls State University, Thibodaux, LA.
1986, 381p.
Sponsoring Agency: Louisiana State Department of Education, Baton Rouge. Division of Vocational Education.
EDRS Price: MF01/PC16 plus postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Competency Based Education; *Computer Software; *Data Processing; *Programing

This curriculum guide was developed to help teachers (especially in Louisiana) prepare students to obtain entry-level employment in data processing or a related career. The guide provides a rationale and course description for a two-part course to be taught in grades 11-12. The guide contains 11 units. Early units introduce students to fundamental data processing concepts, equipment operations and data entry, programming, software applications, computer systems, and data processing-related careers. Programming problems and software applications are business oriented. Additional units for a second-semester course include advanced data processing fundamentals, proficiency in data entry operations, advanced programming, and advanced software applications, as well as a unit on the impact of computers on society. Each complete unit of instruction contains competencies, objectives and goals, mastery criteria, methodology, content outline, activities, sample tests with answer keys, ideas for bulletin boards, and lists of equipment, supplies, and supplementary materials.

ED320032
Programmable Logic Controllers. Teacher Edition.
Rauh, Bob; Kaltwasser, Stan
Mid-America Vocational Curriculum Consortium, Stillwater, OK.
1990, 483p. For related documents, see ED 320 030-031.
Available from: Mid-America Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. CN602601: $28.50).
EDRS Price: MF02 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Manufacturing; *Electronic Control; *Numerical Control; *Occupational Information; *Programing

These materials were developed for a seven-unit secondary or postsecondary education course on programmable logic controllers (PLCs) that treats most of the skills needed to work effectively with PLCs as programming skills. The seven units of the course cover the following topics: fundamentals of programmable logic controllers; contracts, timers, and counters; sequencers and registers; editing and programming functions; installation and troubleshooting; types of PLCs and programming; and industrial program applications. The first section of the manual is designed to show teachers how to use the materials and includes an explanation of instructional elements; an instructional task analysis for each unit; a list of tools, equipment, and materials; and a list of 14 references. Each instructional unit includes some or all of these basic components: performance objectives; suggested activities; information sheets; transparency masters; assignment sheets; job sheets; tests; and test answers. Some elements, such as the information sheets, include photographs, diagrams, and line drawings.

ED320025
Basic Drafting. Revised.
Schertz, Karen
Mid-America Vocational Curriculum Consortium, Stillwater, OK.
1990, 1,017p. Revision of ED 219 653-654.
Available from: Mid-America Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. 302001: $45.50).
EDRS Price: MF07 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Design; *Drafting; *Entry Workers; *Job Skills; *Orthographic Projection

This introductory module on drafting includes the technical content and tasks necessary for a student to be employed in an entry-level drafting occupation. The module contains 18 instructional units that cover the following topics: introduction to drafting; tools and equipment; supplies and materials; sketching; scales; drawing format; lettering; lines; reproduction; geometric constructions; orthographic views; auxiliary views; sectional views; axonometrics; obliques; perspectives; dimensioning; and

tolerancing. Each instructional unit follows a standard format that includes some or all of these eight basic components: performance objectives, suggested activities for teachers and students, information sheets, assignment sheets, job sheets, visual aids, tests and answers to tests, and assignment sheets. All of the unit components focus on measurable and observable learning outcomes and are designed to be used for more than one lesson or class period. A list of tools, materials, and equipment; 37 references; and instructional/task analyses are also included.

Writing

ED309460
PlayWrite.
Amodeo, Janis
1987, 27p. For related document, see ED 309 461.
Sponsoring Agency: New Jersey Governor's Teacher Grant Program, Trenton.
EDRS Price: MF01/PC02 plus postage.
Document Type: Project Description (141); Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Language Arts; *Nonverbal Learning; *Teacher Developed Materials; *Writing Instruction

This report describes the PlayWrite Program, which was developed in the Montville Township School District, New Jersey, to encourage children in grades K-6 to write. The primary objectives of the program are to increase students' motivation to write; to improve their writing skills through the process of brainstorming, composing, revising, and editing; to help students learn how to generate topics for writing; to increase their self-confidence in conversational fluency; and to expose students to word processing as an aid to written composition. The report contains a review of the literature for language and nonverbal learning, cooperative learning, and computer-assisted instruction; a description of the program; sample activities; and evaluation design and results. (37 references)

ED319359
Research on Wordprocessing and Writing Instruction.
Bangert-Drowns, Robert L.
Mar 1989, 6p. Paper presented at the American Educational Research Association (San Francisco, CA, March 30-April 2, 1989).
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Instructional Effectiveness; *Student Attitudes; *Thinking Skills; *Word Processing; *Writing Skills

In response to critics' charges that use of the word processor may have a detrimental effect on writing, this study identified and analyzed 20 published studies that used experimental and control groups to compare conventional writing instruction (using handwriting) with instruction using the word processor. Five types of outcomes were analyzed: (1) number of revisions; (2) composition length; (3) students' attitudes toward writing; (4) basic writing skills (e.g., spelling, punctuation, and grammar); and (5) overall quality of written documents. Because a true meta-analysis was not possible using the available studies, calculation of effect sizes was supplemented with a narrative summary procedure. In spite of the various pitfalls that plagued the studies, word processing still proved to be a beneficial addition to writing instruction. Word processing appeared to increase students' enjoyment of writing and stimulate them to compose longer documents. Unexpectedly, it was found that word processing also tends to improve performance of basic writing skills. The securest finding, which came from 13 of the 15 studies that examined overall quality of writing, was that students instructed with word processing produced papers of better quality than students who produced handwritten papers. On the basis of these findings, it can tentatively be concluded that the word processor operates as an unsophisticated instructional tool (i. e., it instructs as it is being used) although it does not explicitly stimulate metacognitive activity. (8 references)

ED321256
Improving the Written Communication Skills of Upper Elementary Alternative Education Students by Using a Word Processor.
Black, Susan E.
1989, 70p. Ed.D. Practicum, Nova University.
EDRS Price: MF01/PC03 plus postage.

Document Type: Practicum Paper (043)

Major Descriptors: *Communication Skills; *Computer Assisted Instruction; *Word Processing; *Writing Improvement; *Writing Processes

A practicum was designed to improve and expand the writing skills of 13 fifth-grade students placed in an upper elementary school Alternative Education program. The major goal was to provide the students with the means to improve their written output and grammar. Secondary goals were to help the children to think logically about the writing tasks and to enhance student self-images. Students were trained to use the computer and word processor and engaged in such prewriting activities as discussion, determining the main idea and subordinate details, and judging for whom the composition would be written. They kept a daily journal to which the teacher responded in a nonjudgmental manner, and the word processor was used almost daily to improve writing and student attitudes. An informal writing checklist was utilized to determine if writing skills improved. Analysis of the data revealed that the students benefitted from using a word processor in the following ways: they were able to write logically and coherently on a given topic; it was easier for them to see and correct mistakes; written output increased; they expressed their feelings in their written work; writing exercises seemed to provide an emotional release which lessened inappropriate behaviors; student use of adjectives and adverbs showed increases; spelling improved; and in some instances, capitalization improved. Classwork and homework were returned promptly. (Four tables of data are included. Appendixes include a dictated paragraph, checklist for informal evaluation of writing, first dictation and final dictation samples, a letter of permission to use the informal checklist, a key to symbols denoting writing errors, and three writing samples. Thirty references are attached.)

ED319755

The Development of Children's Writing Awareness and Performance within a Generative/-Evaluative Computerized Prompting Framework.

Bonk, Curtis J.; Reynolds, Thomas H.

Apr 1990, 69p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

Sponsoring Agency: American Psychological Association, Washington, D.C.; Wisconsin Alumni Research Foundation, Madison.

EDRS Price: MF01/PC03 plus postage.

Document Type: Research Report (143); Conference Paper (150); Test, Questionnaire (160)

Major Descriptors: *Child Development; *Computer Assisted Instruction; *Cues; *Elementary School Students; *Writing Instruction

The use of a generative and evaluative computerized prompting framework to improve the teaching of writing skills was studied with 164 children in grades 6, 7, and 8 with high or low writing skills, who were randomly assigned to control or treatment groups. The treatment group received computer prompts, think sheet scaffolds, and expert modeling of writing prompts. Dimensional and holistic assessment of written products, internalization of writing control strategies as measured by the Index of Writing Awareness (IWA) (an instrument developed to measure cognition about writing), open-ended questions, and a prompt sort task failed to show any advantage from treatment. Students' holistic scores were, however, significantly correlated with their awareness of writing skills. Keystroke analysis indicated that the availability of prompts seemed to lower the number of changes students made during the writing process. Differences in holistic performance, IWA performance, metacognitive guidance in writing, surface revisions, and repositioning within papers between grades 6 and 7 were not found between grades 7 and 8, suggesting that a developmental change had occurred between grades 6 and 7, and that procedural assistance may be most appropriate in grade 6. Nine tables present data from the study. A 52-item list of references and 7 appendices, including a proposed model of composition and the study instruments, are included.

ED320333

Pilot Study of the Writing To Read System.

Case, Elizabeth J.; Christopher, Marty

Albuquerque Public Schools, NM.

Nov 1989; 16p. Figures I and II may not reproduce.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Evaluative Report (142)

Major Descriptors: *Beginning Reading; *Computer Assisted Instruction; *Disabilities; *Multisensory Learning; *Teaching Methods; *Writing Instruction

The paper describes the Writing to Read instructional system and its implementation in five Albuquerque (New Mexico) public schools with kindergarten, first grade, and special education students.

The Writing to Read System is a multisensory, multimedia literacy program and involves five types of materials: a computer-based instructional program; correlated student work journals; word processing; language-development activities; and use of read-along tapes of children's literature. Students use the program for 1 hour each day. Pretests and posttests given 2 months apart were used to evaluate the program. Major findings indicated that, on standardized reading tests, kindergarten and primary special education students receiving the Writing to Read instruction progressed almost five times faster than did students in the comparison group. In addition, the Writing to Read System proved to be an effective intervention strategy for students who had been referred for special education testing but who had not yet been tested or placed. Contains nine references.

ED315778

Writing with Computers: Accommodation, Achievement, and Attitudes.

Eastman, Susan Tyler; And Others

May 1989, 31p. Paper presented at the Annual Meeting of the International Communication Association (39th, San Francisco, CA, May 25-29, 1989).

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Computer Assisted Instruction; *Models; *Student Attitudes; *Writing Instruction; *Writing Processes; *Writing Skills

A three-year study examined the efficacy of microcomputers in the teaching of writing in the regular school classroom and combined experimental and observational methods to develop a model of effective application of computers to the eighth-grade writing skills situation. Divided into control, mixed, and experimental classes, 281 students in six classes using computers were compared with 231 students in nine classes using paper and pencil and 212 students in nine classes in a mixed treatment, using computers as well as paper-and-pencil. Results showed that a computer was needed for each individual student during every class meeting to maximize the value of using word processing. In the fully computerized treatment, students demonstrated greater use of high-level editing than in the paper-and-pencil or mixed treatments, and students who used computers developed more positive attitudes toward revision, drafting, and learning to use computers than those who had only brief or no exposure. Results suggested 14 design criteria to weigh in effective computerization of writing classrooms, and writing instruction was most effective in brief, immediately applied "mini-units" rather than in longer lessons. Student work was initially slower and more asynchronous among members of a class, and teaching was most effective using process-based and cooperative learning strategies. Student use of printers was key to increased feedback from others, leading to increased revising and editing of their work. The model illustrates the contributions of computers, printers, lessons, and learning environment to the development of mature writing skills. (One figure and four tables of data are included; 40 references are attached.

ED316200

Writing. A Research-Based Writing Program for Students with High Access to Computers. ACOT Report #2.

Hiebert, Elfrieda H.; And Others

Apple Computer, Inc., Cupertino, CA.

1989, 16p. Apple Classrooms of Tomorrow Research. For additional reports in this series, see ED 316 199-203.

EDRS Price: MF01/PC01 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Instructional Development; *Word Processing; *Writing Instruction

This report summarizes the curriculum development and research effort that took place at the Cupertino Apple Classrooms of Tomorrow (ACOT) site from January through June 1987. Based on the premise that computers make revising and editing much easier, the four major objectives emphasized by the computer-intensive writing program are fluency, knowledge of text structures, writing processes, and sharing. Research indicates that the computer helps facilitate each of these objectives. An exploratory study of the ACOT writing program using classroom observations, student work samples, and interviews with teachers indicated that: (1) quality of instruction, not merely access to computers, is the more significant factor in learning to write; (2) students maintained a level of enthusiasm, comfort, and persistence seldom seen when they have to write by hand to plan, draft, and revise their writing; (3) writers were much more willing to share their work when they had legible, computer-produced text on their screens and on the printed page; (4) students wrote more and better when they used computers for their daily writing activities; (5) low-achieving students demonstrated significant improvement in the quantity and elaboration of their writing; and (6) once third-grade students learned to keyboard an

average of 26 words per minute, they were able to record thoughts faster than they could by hand. Critical findings emerging from the study are: (1) any sound writing program can be better facilitated when children write with computers regularly; (2) effective instruction is critical for students to become competent writers; and (3) collaboration between teachers and researchers can produce successful research-based instructional programs. (5 references)

ED309768
Intelligent Writing: The Electronic Liberation of Text.
Levinson, Paul
1989, 22p. Paper presented at the Annual Meeting of the American Association for the Advancement of Science (155th, San Francisco, CA, January 16, 1989).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Review Literature (070); Position Paper (120); Conference Paper (150)
Major Descriptors: *Electronic Publishing; *Information Dissemination; *Word Processing

The problem of disseminating scientific and humanistic knowledge to all segments of the population has thus far been explored in terms of socioeconomic and pedagogical impediments to science and liberal arts literacy. This paper seeks to recast this problem as a consequence of "book technology," and in particular explores how books and their service structures in bookstores, libraries, and universities work to segment and isolate knowledge from members of the population. In this context, the introduction of electronic text, with its capacity for instant transmissability across large distances, infinite duplicability, permanent storage, interactivity, modifiability, and "hypertext" instant cross-referencing, is scrutinized in three related environments for the new possibilities it holds for literacy: (1) word processing, (2) hypertext, and (3) hypermedia. (36 notes/references)

ED314023
The Efficacy of Computer Assisted Instruction in Teaching Composition.
Liechty, Anna L.
Jul 1989, 66p. Exit Project, Indiana University at South Bend.
EDRS Price: MF01/PC03 plus postage.
Document Type: Review Literature (070); Evaluative Report (142); Dissertation (040)
Major Descriptors: *Computer Assisted Instruction; *Instructional Effectiveness; *Word Processing; *Writing Improvement; *Writing Instruction

This study addresses two questions: how can computers be effectively employed in the composition classroom, and to what extent does instruction in writing complement the use of the word processor in developing writing skills? Thirty-eight current research studies on the effects of using word processing to teach composition are reviewed. The studies are categorized in two ways: studies in which participants received simultaneous instruction in the writing process as they used word processors, and studies in which participants did not receive such instruction. Within these categories the studies were further grouped by the maturity or ability level of the participants (young, basic, or able writers). Analyses of the findings indicated that: (1) given the increased time on task, greater length of writing samples, and positive attitudes of most students writing with word processors, the computer seems to be a valuable instructional tool in the composition classroom; (2) the writer's tendency to do less planning when writing with a word processor necessitates instructional intervention; (3) significant questions are raised about the role of the computer in the editing process; (4) using word processors in the writing classroom aids collaboration with teachers and peers; (5) the computer helps the younger writer to recognize and correct errors; and (6) a relationship exists between the combination of process-approach instruction and word processing and improved quality of compositions, especially for young and low-ability writers. It is recommended that school systems encourage and support the use of word processors supplemented with the process approach to teach composition, especially in elementary and junior high schools and with learning disabled students. (43 references)

ED310381
The Write Help: A Handbook for Computers in Classrooms. Report No. 6.
Mehan, Hugh, Ed.; Souviney, Randall, Ed.
California University, La Jolla. Center for Human Information Processing.
Jul 1984, 250p.

Sponsoring Agency: California State Department of Education, Sacramento.
EDRS Price: MF01/PC10 plus postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Class Activities; *Computer Assisted Instruction; *Language Arts; *Reading Instruction; *Writing Exercises; *Writing Instruction

The result of a year of research and development in the classroom, the language arts activities presented in this handbook are designed for use with microcomputers in elementary and junior high classrooms. The first chapter reviews the current uses of microcomputers in the classroom and identifies the problems associated with the prevailing "drill and practice" approach. The second chapter presents a framework that treats the microcomputer as a tool to assist teachers while emphasizing a holistic approach to instruction and the interactive capabilities of microcomputers. Chapter 3 discusses the role of the teacher in computer software development and the use of computers in the writing process. Chapters 4 through 8 present five sets of computer activities using examples of actual software available for the Apple II. Alternate software and most popular computers can be employed in the activities and are suggested throughout the text. (A list of software and source books for teachers, a glossary, and blackline masters of task cards, posters and overhead projector slides are included.)

ED313697
Classroom Contexts and Literacy Development: How Writing Systems Shape the Teaching and Learning of Composition. Technical Report No. 476.
Michaels, Sarah; Bruce, Bertram
Bolt, Beranek and Newman, Inc., Cambridge, MA.; Illinois University, Urbana. Center for the Study of Reading.
Jul 1989, 60p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.; Spencer Foundation, Chicago, Ill.
EDRS Price: MF01/PC03 plus postage.
Document Type: Research Report (143); Non-Classroom Material (055)
Major Descriptors: *Classroom Environment; *Computer Assisted Instruction; *Writing Instruction

This report argues for and illustrates an approach to the study of writing in school settings that integrates ethnographic analysis of classroom interaction with linguistic analysis of written texts and teacher/student conversational exchanges. The report explores the relationships among classroom contexts, computer-based innovations, writing practices, and actual written texts—based on long term participant observation in two urban, sixth-grade classrooms, over a 2-year period. The first two sections define the construct of a classroom writing system and discuss both the outside forces on the classrooms and the particular patterns of social organization that pre-dated the introduction of computer technology. The third section focuses on the function and use of the computer with QUILL software within each classroom writing system; the fourth section discusses the importance of teacher expectations in shaping student writing by using a case study to trace the development over time of a single composition, from first to final draft. The final section examines the conflicting purposes at work within a classroom writing system and the demands that those conflicting purposes put on both teachers and students in carrying out sensible writing and response in classroom encounters. The report concludes by discussing the interrelated implications that a writing systems approach has for equity, writing instruction, evaluation of innovations, and teacher education. Ten figures and four tables of data are included; 57 references and one appendix about the Quill software tools are attached.

ED314760
Alternate Realizations of Purpose in Computer-Supported Writing. Technical Report No. 492.
Rubin, Andee; Bruce, Bertram
Bank Street College of Education, New York, N.Y.; Bolt, Beranek and Newman, Inc., Cambridge, Mass.; Illinois University, Urbana. Center for the Study of Reading.
February 1990, 17p. For a related document, see ED 268 583.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Uses in Education; *Educational Innovation; *Electronic Mail; *Writing Instruction

This report examines a variety of ways that the QUILL program for teaching writing was realized in elementary classrooms. In particular, the report looks at the different ways purposeful writing was achieved using MAILBAG, the electronic mail component of QUILL. The analysis shows that innovations

in education should be viewed as objects created by classroom teachers as they integrate the packaged innovation with the realities of their institutions, their students, and their own goals and teaching styles.

ED321276
The Word Processor as a Tool for Developing Young Writers.
Schrader, Carol Taylor
1990, 38p.
EDRS Price: MF01/PC02 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Assisted Instruction; *Word Processing; *Writing Instruction

A study investigated how young children use the word processor as a tool in their development as writers. Forty children, ages 4 through 7, from a university laboratory school in a small midwestern community, participated in the study. Videotapings and audiotapings during writing events served as the primary means of data collection. These were supported with children's written language productions from the computer printer and field notes from informal teacher interviews. Analysis of the children's writing behaviors with the word processor was based on Piaget's cognitive development theory applied to written language learning. Features of children's written language were classified according to Marie Clay's beginning writing concepts and principles. Children's writing development correlated with findings from studies of young children learning to write with traditional instruments. Features of their writing paralleled many of Clay's concepts and principles of early writing development. Findings supported Clay's research and imply that young children can use the word processor in a creative writing program to promote their developing writing abilities in many ways and in different ways at different stages of their development. (One figure and four tables of data are included, and 100 references are attached.)

Special Populations

Adult Education

ED314607
Adult Literacy & Technology: Guide to Literacy Software. 1989 Edition.
Adult Literacy and Technology Project, San Ramon, CA.
1989, 126p.
Sponsoring Agency: Gannett Foundation, Rochester, NY.
Available from: Adult Literacy & Technology Project, PCC, Inc., 2682 Bishop Drive, Suite 107, San Ramon, CA 94583 ($13.50 members; $15.00 nonmembers).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Directory (132)
Major Descriptors: *Adult Basic Education; *Computer Assisted Instruction; *Computer Uses in Education; *Courseware; *Literacy Education; *Programed Instructional Materials

This second issue of an annotated listing of educational software suitable for use with adult basic education (ABE) students was compiled through reviews of software by ABE teachers and their students for its effectiveness and appropriateness to adult literacy instruction. The featured programs include drill and practice, simulations, educational games, word processing programs, and tutorials. The software is listed alphabetically by instructional category (English, life skills, mathematics, reading). The annotated remarks include descriptions and some perceived strengths and weaknesses of individual programs; information on publisher, price, type of computer on which the software runs, subject area, and level of use is also provided. An appendix to the guide is divided into three main categories: technical assistance (glossaries, hardware decisions, illustrated guide to the computer), listings of reviewed software; and resources, publisher addresses, and a comment form.

ED315745
Penn State Adult Literacy Courseware: Impact on Parents and Children. Final Report.
Askov, Eunice N.
Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.
10 Sep 1987, 18p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Adult Reading Programs; *Courseware; *Parent Student Relationship; *Reading Attitudes

The Penn State Adult Literacy Courseware project uses a "whole word" approach with some word-building activities in teaching 1,000 high frequency and functional words to adult beginning readers whose children participate in Chapter I programs. The aim of the project is to counteract the intergenerational effects of illiteracy. The courseware runs on an Apple IIe microcomputer and is interactive, branching, and responsive to the user's answers and needs. The objectives for the 1986-87 fiscal year were: (1) summative evaluation and monitoring of the courseware in parent literacy sites; (2) revision of the teacher's manual to include various models for using the courseware in parent literacy sites; (3) further development of teaching activities to facilitate the transfer of words recognized on a computer screen to recognition in print; and (4) completion of the interactive audiodisk version with formative evaluation in sites serving non-native speakers. In meeting the first objective, a group of parents and their children participated in the program. Comparison of pretests and posttests indicated that the 52 parents completing 20 hours of instructional time gained more than 1 year in reading level, compared to at least 50 hours of instructional time to make comparable gains in traditional programs. The remaining three objectives were met. Teachers in the program have noted significant attitudinal shifts in both parents and children.

ED317755
Templates for Literacy: Manual Evaluation. Final Report.
Askov, Eunice N.; Brown, Emory J.
Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.
1989, 41p. Photocopied photographs will not reproduce well.
Sponsoring Agency: Playing To Win, Inc., New York, NY.
Available from: Institute for the Study of Adult Literacy, Pennsylvania State University, 204 Calder Way, Suite 209, University Park, PA 16801.

EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Evaluative Report (142)
Major Descriptors: *Adult Literacy; *Computer Assisted Instruction; *Computer Literacy; Guides; *Literacy Education; *School Holding Power; *Tutors

A study evaluated the effectiveness of the Templates for Literacy manual, which is designed to help the adult beginning reader integrate computer and literacy learning. The manual contains guidelines and strategies for incorporating word processing, spreadsheet, database, and graphics software into literacy curricula. The draft manual was pilot-tested for 18 weeks in three adult learning programs in New York City; Salem, Oregon; and Weirton, West Virginia. Data were collected through site visits. Limitations of the study include the fact that methods for determining student learning varied among the sites, and pre- and posttest data were not always available. The following results are reported: (1) tutors and teachers were enthusiastic about the manual as a tool for helping to teach low-level literacy students; (2) almost all instructors limited their teaching to the word processing templates, with very few students attempting database templates and no one using spreadsheets or graphics; (3) students were highly motivated by using the computer and reported that the templates helped them improve their reading and writing; (4) students at all reading levels learned computer skills by using the templates; and (5) there was evidence at all sites that having an opportunity to work with computers was very desirable and a motivating force in recruiting students as well as tutors. (The document contains three case studies, interview guides, a reporting form, questionnaires, and photocopies of photographs showing the manual being used.)

ED317758
Evaluation of Computer Courseware for Adult Beginning Reading Instruction in a Correctional Setting. Final Report.
Askov, Eunice N.; And Others
Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.
30 Aug 1986, 62p.
Sponsoring Agency: Pennsylvania State Department of Education, Harrisburg. Bureau of Vocational and Adult Education.
Available from: Institute for the Study of Adult Literacy, Pennsylvania State University, 204 Calder Way, Suite 209, University Park, PA 16801.
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Evaluative Report (142)
Major Descriptors: *Adult Literacy; *Computer Assisted Instruction; *Correctional Education; *Courseware; *Instructional Effectiveness; *Literacy Education

The effectiveness of using computer courseware developed for adults reading below the fourth-grade level was investigated with inmates at Rockview State Correctional Institution. Data were collected both to establish multiple baseline data and to permit experimental group comparison with a control group. The multiple baselines portion of the study involved 11 male inmates with reading levels of 0-4 who completed 18-25 hours of work with the courseware. The Wide Range Achievement Test (WRAT) and the Slosson Oral Reading Test (SORT) were used as pre- and posttests. The courseware was considered effective. Testing 10 months later showed that students' retention level was about 90 percent. In the experimental/control group portion of the study, 27 inmates were tested with 2 sections of the Baltimore County Design, the Bader Reading and Language Inventory, the SORT, and a test of incidental learning of computer words. The experimental group each used the courseware for 10-22 hours whereas the control group received small group and tutorial instruction using traditional beginning materials for adult reading instruction but was not exposed to computer-assisted instruction. The 23 men who completed the work were given posttests using the same measures used for the pretests. Analysis of variance for repeated measures was used to analyze the test differences. The only measure that showed a statistically significant difference was the Bader Reading and Language Inventory. The control group showed no improvement on the posttest measure and had fallen behind the experimental group at that time, even though they had started out at a higher level. (Two references and three tables are included.)

ED317759
Use of Computer Assisted Instruction with Displaced Workers and Volunteer Tutors. Final Report.
Bixler, Brett; Askov, Eunice N.
Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.
Aug 1988, 24p.
Sponsoring Agency: Pennsylvania State Department of Education, Harrisburg. Bureau of Vocational and Adult Education.

BEST COPY AVAILABLE

Available from: Institute for the study of Adult Literacy, Pennsylvania State University, 204 Calder Way, Suite 209, University Park, PA 16801.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Dislocated Workers; *Literacy Education; *Reading Achievement; *Tutoring

A study examined the use of the Penn State Adult Literacy Courseware, which teaches sight vocabulary to beginning adult readers, in a volunteer tutoring situation with three male and two female unemployed adults whose average grade level in reading was 1.1. All students were white, their average age was 37, and the highest grade any of them had completed in school was the 10th. The five tutors were all female and received 14 hours of training on the use of the courseware before giving 20 hours of tutoring. Pre- and posttest measurements were taken with the Slosson Oral Reading Test (SORT), an attitude survey of tutors and students concerning the use of computers, and two sections of the Baltimore County Design, which measured how well the students could identify words in isolation and in context. Limitations of the study include the small number of subjects (N=9) and the fact that there was no control group, so the results cannot be considered statistically significant. Analysis of the pre- and posttest results showed positive gains on all three measurement instruments. The average reading grade level had risen to 1.76 after only 20 hours of instruction, as compared with a minimum 25 hours that traditional programs take to make comparable gains. Students increased their positive attitudes about computers. Starting with less positive attitudes, the tutors also increased their positive feelings. However, no tutors indicated they would prefer the computer over any other method. (The document includes results of a tutor survey on how the courseware could better serve the needs of displaced workers and on the role of the tutor, as well as a 13-item bibliography.)

ED321088

A Project To Design an Evaluation of the Appropriateness and Effectiveness of Computer-Assisted Instructional Packages Used in the Remediation of Basic Skills.

Charleston, G. Mike; And Others

Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.

30 Mar 1989, 106p.

Sponsoring Agency: National Commission for Employment Policy (DOL), Washington, DC.

Available from: Institute for the Study of Adult Literacy, Pennsylvania State University, 204 Calder Way, Suite 209, University Park, PA 16801.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Computer Software Evaluation; *Courseware; *Employment Programs; *Job Training; *Remedial Programs

A project was conducted to develop two evaluation designs for computer-assisted instructional (CAI) packages used in the remediation of basic skills in Job Training Partnership Act (JTPA) programs. Information was gathered from a literature review identifying principal factors and issues germane to the evaluation design; site visits, interviews, and observations; and structured interviews with expert panels, consultants, service providers, and vendors. The taxonomy developed by the project is a system of classifying CAI packages based on the needs of the JTPA population and the degree of complexity and quality of the technology employed in the CAI packages used by JTPA programs in the remediation of basic skills. The taxonomy requires consideration of types of CAI packages and quality measures. Two evaluation designs have evolved from the rationale and taxonomy: (1) a large-scale, longitudinal design equal to approximately six professional person years of effort; and (2) a small-scale, survey-type evaluation effort. Both evaluation designs are structured to provide information about the effectiveness and efficiency of CAI packages used in basic skills remediation in JTPA programs. (Includes 64 references and lists of vendors, experts panel, consultants, and programs interviewed.)

ED317805

Networked Learning in 70001 Programs.

Fine, Marija Futchs

July 1989, 19p. Paper presented at the Adult Literacy and Technology Conference (Louisville, KY, July 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Basic Skills; *Computer Assisted Instruction; *Computer Uses in Education; *Educational Technology; *Literacy Education; *Mathematics Instruction

The 70001 Training and Employment Institute offers self-paced instruction through the use of computers and audiovisual materials to young people to improve opportunities for success in the work force. In 1988, four sites were equipped with Apple stand-alone software in an integrated learning system that included courses in reading and math, test scoring, and recordkeeping. 70001 staff evaluated participants and staff at the four sites from August 1, 1988 through June 30, 1989. The 84 participants spent from several weeks to more than 4 months on the networked system. On average, they worked through 16 problems for every 10 minutes spent on the computer. Eighty-two of the 84 participants felt successful as they worked through the program. Average grade gains for 47 participants at 3 sites were 1.41 for reading and 1.92 for math. The fourth site used a different scale, with results comparable to the other three sites, roughly equivalent to one grade gain for every 100 hours of instruction. 70001 field staff pointed out five weaknesses in the use of computers to present instructional material: a lack of clarity in some learning concepts, a need for special inservice training, limitations in student assessment procedures, difficulty in using some computer commands, and the need for suggestions to meet needs of students at varying levels. (The paper includes 15 pages of data tables, surveys, and survey responses.)

ED311281

An Action Plan for Integrating Computers into Volunteer Adult Literacy Programs.

Jagger, Christina

July 1989, 8p. Paper presented at the Adult Literacy and Technology Conference (Louisville, KY, July 20-22, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Position Paper (120)

Major Descriptors: *Adult Literacy; *Computer Assisted Instruction; *Literacy Education; *Voluntary Agencies; *Volunteer Training

The following steps will integrate computers into a volunteer literacy program: (1) decide how the computers will be used, depending on the program's needs (typically, computers are used to help with management chores and to motivate students and help them attain their academic and career goals); (2) investigate software and hardware, including database programs, word processing programs, and educational software for the students; (3) plan to teach staff to operate the computer and associated equipment, be able to choose appropriate software, and integrate the software into instruction; and (4) plan for evaluating the effectiveness of using computers with students, including collecting data about student progress, attitudes, and attendance. (The document contains explanations of kinds of software, including types such as vocabulary and comprehension software that may be of particular interest to literacy programs. Also included is a list of 12 questions to consider when selecting computer software.)

ED311209

Computer Software for Teaching Basic Skills to Adults. An Evaluation.

Los Angeles Council on Careers for Older Americans, CA.

1989, 155p. Portions are printed on colored paper.

Sponsoring Agency: Montana State Department of Public Instruction, Helena. Division of Adult Education.

EDRS Price: MF01/PC07 plus postage.

Document Type: Evaluative Report (142); Directory (132)

Major Descriptors: *Adult Basic Education; *Basic Skills; *Computer Assisted Instruction; *Computer Software; *Programed Instructional Materials; *Skill Development

This color-coded guide/catalog was prepared as a resource for adult educators through a Montana project that evaluated computer software for teaching basic skills to adults. The guide is divided into three parts. Part I consists of the results of the assessment and evaluation of 119 pieces of software currently being used at 16 adult basic education sites in the state. Evaluations are organized according to the following subject matter areas: language arts, reading, mathematics, science, social studies, business/office skills, and other. For each software title the following are indicated: appropriate level, hardware, subject/skill area, publisher, cost, borrowing policy, ratings, instructional purposes, program description, and other comments. Part II of the notebook consists of the data obtained on the six pieces of software purchased and evaluated through the Center for Community Education at Montana State University. Titles are (1) Basic Math Competency Skill Building; (2) LEA 1 Functional Literacy Using Whole Language; (3) Grammar and Writing, a Language Arts Experience; (4) Reading and Thinking I-IV; (5) Crossword Magic; and (6) Compu-Read. This software is available for adult educators in Montana to borrow. Part III contains a listing of other resources that might be helpful to adult educators making decisions about computer software. Included are lists of other evaluation references, several pertinent publications, and a list of software publishers/distributors.

ED317756

Computer-Assisted Instruction in Basic Skills for Older, Low-Literate Adults. Final Report.

Moore, Kimberly A.; Askov, Eunice N.

Pennsylvania State University, University Park. Institute for the Study of Adult Literacy.

June 1989, 21p.

Sponsoring Agency: Pennsylvania State Department of Aging, Harrisburg.

Available from: Institute for the Study of Adult Literacy, Pennsylvania State University, 204 Calder Way, Suite 209, University Park, PA 16801.

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Research Report (143)

Major Descriptors: *Adult Literacy; *Computer Assisted Instruction; *Courseware; *Literacy Education; *Older Adults

A 6-month study examined the attitudes of older, low-literate adults toward using computers to learn to read and tried to determine the effectiveness of Penn State Adult Literacy Courseware for beginning readers with older, low-literate adults at a community-based senior center. The students were 10 black adults, aged 66 to 86 and educated at the 2nd- to 11th-grade level. They were tutored by 10 females, 8 of whom were black, who ranged in age from 64 to 72. All tutors were educated at the secondary level or beyond, seven of them had tutored before, and three said that they had had some experience using computers. The Attitudes toward Computers for Reading Instruction questionnaire and the Slosson Oral Reading Test (SORT) were used as pre- and posttests. The tutors were trained in the courseware before working with the students. The range of actual instructional hours was 6 to 19, and only 7 tutor-student pairs were active at the end of the study. No strong conclusions about the effectiveness of the courseware and the attitudes of the students can be made, due to the absence of a control group and the small sample size. Gains on the SORT occurred for all but two of the seven students. The mean gain was 2 months. Overall, changes in the students' attitudes toward computer-assisted reading were in a positive direction.

ED313584

Beginning with the Learner: Strategies To Individualize Adult Literacy Programs.

Shepherd, R.

July 1989, 4p. Paper presented at the Adult Literacy and Technology Conference (Louisville, KY, July 21-24, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Adult Literacy; *Computer Assisted Instruction; *High Risk Students; *Individualized Instruction; *Literacy Education

The basis for all computer-assisted instruction at the Continuing Education Learning Center at Jackson State University is the instructional techniques necessary for the success of at-risk adult learners who find traditional methods inadequate. Each learner is pretested for reading level for placement, and skill assessments are made to diagnose specific weaknesses in content areas. Individualized competency-based education programs are designed to address content weaknesses that must be overcome if the learner is to succeed in the work force or the center's General Educational Development (GED) program. The computer-assisted instruction in these programs allows learners to learn at their own pace, helps make them accountable for their own learning, provides frequent feedback, and accommodates several learning styles. All of those aspects of instruction are needed by at-risk students. The center uses interactive and personal computers, video- and audiocassettes, printed material, and tutoring. Custom-designed programs include one targeted for 16 prison inmates and another that trains women older than 55 to be home health aides and child care workers. The average basic reading level improvement is 1.8 grade levels per 100 hours of training. Of the learners enrolled in the GED Preparation Program, 63 percent pass 1 to 5 subject area tests in a maximum of 100 hours of training. Ninety-three percent of learners pass subject area tests the first time they attempt them. The program's attrition rate is 16 percent.

ED321003

The Technology for Literacy Project Evaluation Report.

Stockdill, Stacey Hueftle

August 1988, 47p. For a related document, see ED 295 028. Presented to the Donor Review Board.

Sponsoring Agency: Saint Paul Foundation, St. Paul, MN.

EDRS Price: MF01/PC02 plus postage.

Document Type: Evaluative Report (142)

Major Descriptors: *Adult Basic Education; *Basic Skills; *Computer Assisted Instruction; *Educational Technology; *Outcomes of Education; *Program Effectiveness

The Technology for Literacy Project was a three-year experimental project to explore the use of computers and other forms of technology with adults lacking basic skills in reading, writing, and mathematics. The project, which concentrated on St. Paul, Minnesota, and its surrounding counties, had four components: direct service, incentive grants, training, and research. The project provided technology-based basic skills instruction to 2,494 adult learners (which was 192 percent over initial projections). Over its three years of operation, the program's retention rate increased from 56 to 64 percent. The goal of the project's incentive grant program was to stimulate the use of technology by other existing literacy programs. Toward that end, a total of 14 grants were awarded in four Minnesota counties. The grants were used to purchase hardware and software and to provide training to teachers and staff. The program's training component focused on increasing the use of technology-assisted instruction and facilitating cooperative efforts in technology by training adult basic education instructors in the use of educational technology. The training program included internships, workshops, and conference presentations. The project's research phase resulted in a monograph and various articles on the project's implementation and outcomes.

Disabled Learners/Learning Disabilities

ED310597

Trace-Authored Papers from the Annual Conference on Rehabilitation Technology (11th, Montreal, Canada, 1988). Trace Reprint Series.

Borden, P. A.; And Others

Wisconsin University, Madison. Trace Center.

1988, 14p. A product of the Trace Research and Development Center on

Communication, Control, and Computer Access for Handicapped Individuals. For papers from the 10th annual conference, see ED 297 503.

Sponsoring Agency: National Institute on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.

Available from: Trace Center, University of Wisconsin-Madison, Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280 ($1.80).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Proceedings (021); Project Description (141) Geographic Source: U.S.; Wisconsin

Major Descriptors: *Accessibility (for Disabled); *Disabilities; *Educational Technology; *Input Output Devices; *Physical Disabilities; *Visual Impairments

Summaries are presented of five conference papers on communication, control, and computer access for handicapped individuals. Papers have the following titles and authors: "Accessibility of Graphically Based User Interface Computer Systems for Individuals with Visual Impairments" (Charles Lee and Gregg Vanderheiden); "Data Base vs. Information Base: Preliminary Analysis of a Computerized Information Base in Rehabilitation Technology" (Roger Smith et al.); "Multi-Access Rehabilitation Technology Information Network: MARTIN" (Gregg Vanderheiden); "One Screen Multiplexed Keyboard for Transparent Access to Standard IBM PC Software: (Jon Gunderson and Gregg Vanderheiden); "Accessibility of OS/2 for Individuals with Movement Impairments: Strategies for the Implementation of 1-Finger, Mousekeys, and Software Keyboard Emulating Interfaces Using Device Drivers and Monitors" (Charles Lee and Gregg Vanderheiden).

ED316962

Technically Speaking: Columns from the Monthly Magazine, *The Source*, 1987-88. Trace Reprint Series.

Borden, Peter A.; And Others

Wisconsin University, Madison. Trace Center.

1988, 20p. A product of the Trace Research and Development Center on

Communication, Control, and Computer Access for Handicapped Individuals.

Sponsoring Agency: National Institute on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.

Available from: Trace Center, University of Wisconsin-Madison, Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280 ($2.25).

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Journal Article (080)

Major Descriptors: *Communication Aids (for Disabled); *Disabilities; *Input Output Devices; *Microcomputers; *Physical Disabilities; *Technological Advancement

The "Technically Speaking" columns from several isues of *The Source* magazine are reprinted. The columns were written by Gregg Vanderheiden, Peter Borden, Roger Smith, Jane Berliss, and Charles Lee. Titles of the columns included are: "Technological Advances: A Boon or a Barrier to Persons with Disabilities?"; "Rehabilitation Technology—Hunting for Information"; "Augmentative Communication: Other Ways of Being Heard"; "Environmental Controls: Using Technology to Control Technology"; "Future Directions in Access: Disability and the Electronic Revolution" (second in a series); "Accessible Workstations: An Often Neglected Necessity"; "Hearing the Computer Screen: Questions and Answers on Voice Output"; "A Little Light Reading" (a list of periodicals on assistive technology); and "Conferences" (containing information on two conferences on developments in rehabilitation).

ED316988
What Can Computer Technology Offer Special Education Administrators?
Case, Elizabeth J.; And Others
31 March 1988, 11p. Paper presented at the Annual Conference for Exceptional Children (66th, Washington, DC, March 28-April 1, 1988).
EDRS Price: MF01/PC01 plus postage.
Document Type: Conference Paper (150); Project Description (141)
Major Descriptors: *Administration; *Computer Uses in Education; *Disabilities; *Microcomputers; *School Districts; *Special Education

The paper provides an overview of fundamental uses of the microcomputer by special education administrators in a large-city school district. Microcomputer applications are suggested for the following applications: school-level administrative functions (e.g., tracking equipment repair, budget forecasting, and class scheduling); district-wide administrative applications (student and personnel data, management programs, and state reports); testing; reporting requirements; professional communication and education; compliance with state and federal regulations; staff development; curriculum planning; instructional management; networking; evaluation and research; and telecommunications.

ED321462
Morse Code Activity Packet.
Clinton, Janeen
Florida Diagnostic and Learning Resources System, West Palm Beach.
1989, 29p. For related document, see ED 321 463.
EDRS Price: MF01/PC02 plus postage.
Document Type: Teaching Guide (052)
Major Descriptors: *Coding; *Keyboarding (Data Entry); *Visual Impairments

This activity packet offers simple directions for setting up a Morse Code system appropriate to interfacing with any of several personal computer systems. Worksheets are also included to facilitate teaching Morse Code to persons with visual or other disabilities including blindness, as it is argued that the code is best learned auditorily.

ED321463
Tread on My Tires. . . So I Can Go the Extra Mile (Education for the Physically Impaired).
Clinton, Janeen; Laverty, Linda
Florida Diagnostic and Learning Resources System, West Palm Beach.
Feb 1990, 148p. For related document, see ED 321 462. Printed on multi-colored paper.
EDRS Price: MF01/PC06 plus postage.
Document Type: Non-Classroom Material (055); Teaching Guide (052); Conference Proceedings (021)
Major Descriptors: *Computer Uses in Education; *Mainstreaming; *Physical Disabilities

The first section of this packet consists of worksheets, exercises, software descriptions and "best practices" guidelines for teachers of students with disabilities. The second section reports on findings of a 1989 task force on transition procedures for mainstreaming of the physically impaired, including procedures for referral, eligibility, and placement, as well as "out of district" placement and several task responsibility matrices defining roles of the many support staff, adminstrators, family members, and educators who may be involved in the mainstreaming process. The third section presents guidelines for computer access observation, system design, and hardware/software selection including adaptive equipment. The fourth section covers expanded keyboard overlays highlighting story sequencing and assessment. The fourth section offers simple directions for setting up a Morse Code system appropriate to interfacing with any of several personal computer systems, with worksheets for Morse Code instruc-

tion. The final section presents an inservice training model emphasizing computer applications in the classroom. A list of contact agencies and companies is included.

ED320546
Instructional Technology Adaptive/Assistive Devices.
Clinton, Janeen S.
Palm Beach County Board of Public Instruction, West Palm Beach, FL.
[1987], 277p. Sections H, I, and J pertain only to Florida, and were removed from ERIC's copy by the author.
EDRS Price: MF01/PC12 plus postage.
Document Type: Teaching Guide (052); Non-Classroom Material (055)
Major Descriptors: *Accessibility (for Disabled); *Assistive Devices (for Disabled); *Communication Aids (for Disabled); *Disabilities; *Microcomputers

This training module was developed in order to help teachers, parents, administrators, and other educational personnel to understand the problems and difficulties encountered by learners with disabilities trying to access microcomputers. The main body of the module describes hardware considerations and strategies for increasing microcomputer access, focusing on specific impairments (including autism, emotional handicaps, hearing impairments, mental handicaps, physical impairments, and learning disabilities), and utilizing a variety of adaptive devices. Activities are provided on such topics as modifying input/output accessibility and the utilization of speech output, touch-sensitive devices, speech input (as an alternative to the keyboard), and adaptive firmware cards and switch controls. Objectives, materials specifications, preparation guidelines, detailed procedures, and lists of recommended resources are included for each activity. Also included are a variety of supplementary handouts and overhead transparencies.

ED318197
Integrating Software into the Curriculum: A Statewide Study.
Cohen, Libby G.; Spenciner, Loraine J.
August 1989, 60p.
Sponsoring Agency: Maine State Department of Educational and Cultural Services, Augusta. Division of Special Education.
EDRS Price: MF01/PC03 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Computer Software; *Computer Uses in Education; *Disabilities; *Special Education

This study reports the results of a questionnaire mailed to 700 teachers probing uses of computer software in Maine special education programs. Findings based on a 54 percent response (N=381) indicate no significant differences in educational level, previous training, gender, years of experience, or age between computer users and non-users. Impediments to using computers and activities helpful in using computers were also analyzed. There was very little use of computers in areas other than reading and mathematics, and students were not found to regularly use available computers to work on instructional activities. Computers were generally used in special classrooms and resource rooms, rather than being integrated into regular classroom activities. Many students requiring unavailable interface equipment aside from the standard keyboard were unable to use computers. Appendices contain the questionnaire and a list of teacher-preferred software in several curriculum areas. Includes 18 references.

ED310598
Disabled Access to Technological Advances (DATA) Final Report.
Cress, Cynthia J.
Access to Independence, Inc., Madison, WI.; Computers to Help People, Inc., Madison, WI.; Wisconsin Division of Vocational Rehabilitation, Madison.; Wisconsin University, Madison. Trace Center.
1986, 109p. A product of the Trace Research and Development Center on Communication, Control, and Computer Access for Handicapped Individuals. Appendix G contains light broken print.
Sponsoring Agency: Department of Education, Washington, DC.
Available from: Trace Center, University of Wisconsin-Madison, Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280 ($15.15).
EDRS Price: MF01/PC05 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Cerebral Palsy; *Employment Services; *Microcomputers; *Severe Disabilities; *Technological Advancement; *Vocational Rehabilitation

Disabled Access to Technological Advances (DATA) was a 3-year federally funded project to demonstrate how the application of computer technology can increase the employability of severely disabled persons. Services were provided through the integrated efforts of four agencies in Dane County, Wisconsin: an independent living center, a rehabilitation research and engineering center, a vocational rehabilitation organization, and a computer application and training organization for disabled persons. Fourteen clients, most of them with cerebral palsy, were accepted, evaluated, and supplied with apropriate technology, training, support, education, and counseling. The skills learned were then applied in job-related situations, including educational training, trial work, job search, and employment. By the end of the project, six clients were employed in full- or part-time competitive employment directly related to their career goals, three others had completed trial or volunteer work related to their career goals, four clients utilized technology primarily in career-related education and job search, and one client utilized technology only in job search. Appendices include planning forms, client selection criteria, client profile form, client screening checklist, evaluation forms, and individualized action plan forms.

ED315936
Computers and Students with Special Needs: An Introduction.
Dutton, Donna H.; Carlisle, Lynn, Ed.
California State Department of Education, Sacramento. Division of Special Education.
1988, 30p. For related documents, see ED 315 926-940.
Available from: Resources in Special Education, 900 J St., Sacramento, CA 95814-2703 ($7.00).
EDRS Price: MF01 plus postage. PC not available from EDRS.
Document Type: Teaching Guide (052)
Major Descriptors: *Computer Assisted Instruction; *Computer Uses in Education; *Disabilities; *Parent Education

This document presents one module in a set of training resources for trainers to use with parents and/or professionals serving children with disabilities; focus is on computers and students with special needs. The modules stress content and activities that build skills and offer resources to promote parent-professional collaboration. Each training module takes about 2 hours to deliver. The module guide has eight sections: a publicity flyer, topic narrative, overview, trainer agenda, activities, summary, bibliography, and evaluation. Introductory information explains how to use the modules including conducting a needs assessment, planning the training, selecting the training module, implementation, evaluation, and followup. Objectives of this module are: (1) recognize the ways in which computers can empower students with all disabilities to learn and to function in a more productive manner, (2) identify computer resources available to them, and (3) plan how computer use might be enhanced at home or at school in their specific region. A bibliography identifies 17 books, magazines, or other resources.

ED320386
The Effectiveness of CAI Designed for the Hearing-Impaired.
Fogel, Nancy S.
American Institutes for Research in the Behavioral Sciences, Palo Alto, CA.
November 1988, 15p. Paper presented at the Annual International Meeting of the Association for the Development of Computer-Based Instructional Systems (30th, Philadelphia, PA, November 1988).
Sponsoring Agency: Special Education Programs (ED/OSERS), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143); Conference Paper (150)
Major Descriptors: *Computer Assisted Instruction; *Courseware; *English Instruction; *Hearing Impairments; *Nonverbal Communication

Two pilot studies probed effectiveness of linguistically controlled, highly visual computer-assisted instruction (CAI) for English grammar instruction with hearing-impaired high school students (N=29 in the first study and N=71 in the second). Results from the first study suggested that state-of-the-art CAI designed specifically for use with this population improved students' ability to use articles with count nouns. The second study focused on use of icons to teach English syntax by symbolizing the essence of either a negative or an interrogative syntactical structure and asking students to rank icons implying "negation" or "interrogation." Those exposed to American Sign Language (ASL) selected icons reflecting facial expressions of a native ASL speaker, while those who communicated orally selected universal symbols found in English texts.

ED321440

A Computer Approach to Teaching English Syntax to Deaf Students.

Fogel, Nancy S.

American Institutes for Research in the Behavioral Sciences, Palo Alto, CA.

April 1990, 26p. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).

Sponsoring Agency: Special Education Programs (ED/OSERS), Washington, DC.

EDRS Price: MF01/PC02 plus postage.

Document Type: Conference Paper (150); Project Description (141); Evaluative Report (142)

Major Descriptors: *Computer Assisted Instruction; *Deafness; *Microcomputers; *Syntax; *Teaching Methods; *Visual Learning

A computer-based method of communicating syntactic knowledge to deaf students was designed, building on the visual orientation of deaf students and employing such American Sign Language techniques as visualization and directionality. The computer-based instructional treatments were presented as an educational game called the "Yes-No Game," with visual effects using the high resolution graphics capability of the Macintosh computer. As learners created sentence-pictures and built yes-no questions, animated graphics pictured the transformation of sentences to questions. Textual and graphic corrective feedback were displayed on the computer screen to respond specifically to each error that students made in building English questions. Seventeen treatment subjects in grades 8-11, compared with 15 control subjects, showed significant gains in recognition of correct grammatical structures but showed only marginal improvement in actual sentence production. With accompanying pictures to aid comprehension, and with multiple opportunities to practice and to receive immediate visual feedback, the experiment demonstrated that an instructional foundation and methodology can be provided that will help deaf students overcome their difficulties in building yes-no questions in English.

ED315973

Managing End User Computing for Users with Disabilities.

General Services Administration, Washington, DC. Clearinghouse on Computer Accommodation.

[1989], 98p.

EDRS Price: MF01/PC04 plus postage.

Document Type: Non-Classroom Material (055); Directory (132)

Major Descriptors: *Accessibility (for Disabled); *Assistive Devices (for Disabled); *Computers; *Disabilities; *Government Employees; *Public Policy

This handbook presents guidelines to assist federal Information Resources Managers in applying computer and related information technology to accommodate users with disabilities. It discusses managing the end user environment, assessing accommodation requirements, and providing end user tools and support. The major portion of the document consists of 15 appendices divided into three sections. A section on accommodation resources presents checklists for assessing computer and telecommunications needs; describes information resources in the federal government sector, other governmental levels, and the private sector; describes telecommunications devices for the deaf (TDD); lists federal agency TDD numbers; and offers a brief list of computer accommodation publications. A section on policy and regulatory information includes government regulations concerning electronic office equipment accessibility, continuity of computer accommodation when replacing automated equipment, and transfer of specialized equipment used by handicapped federal employees. A final section lists computer accommodation hardware and software add-ons available in the marketplace, including input devices, output devices, telecommunications devices, and robotic devices.

ED312807

Tracking System for Mentally Retarded Youth in Transition.

Goldbach, Robert L.

Health and Welfare PLANNING Association, Pittsburgh, PA.

November 1988, 45p.

Available from: Health and Welfare PLANNING Association, 200 Ross St., 6th Floor, Pittsburgh, PA 15219-2067 ($12.50).

EDRS Price: MF01/PC02 plus postage.

Document Type: Project Description (141); Non-Classroom Material (055) Major Descriptors: *Data Analysis; *Database Management Systems; *Management Information Systems; *Mental Retardation; *Transitional Programs

A tracking system which monitors Allegheny County (Pennsylvania) mentally retarded students leaving the school system to make their transition to adult life, was developed to: (1) enhance the prospects for successful follow-up; (2) enable program planners to conduct systematic inquiries regard-

ing the abilities, living arrangements, and work situations of youth in transition; (3) supply service providers with valuable subfiles of mentally retarded youth in various circumstances of need; and (4) facilitate research on the problems and opportunities of such youth. The tracking system is designed to be used with two types of software: "dBaseIII+" for data entry and database management, and "SPSS/PC+" for statistical analysis. The system has mechanisms for achieving initial data collection, follow-up interview data collection, file standardization, and data analysis. A user's guide to the tracking system which outlines the options from which the user can construct a suitable tracking "package," and delineates the commands and procedures the tracking system uses to perform specific tasks, is provided. Technical notes, codebooks, diagrams of data entry screens, and a summary of the "dBase" file structure are contained in the appendix.

ED312868
Computers for Vocational Purposes. PAM Repeater, No. 53.
Heiner, Donna; Ensign, Arselia S., Ed.
Physically Impaired Association of Michigan, Lansing. PAM Assistance Centre.
May 1989, 13p. Photographs will not reproduce well.
EDRS Price: MF01/PC01 plus postage.
Document Type: Non-Classroom Material (055); Book-Product Review (072) Major Descriptors: *Assistive Devices (for Disabled); *Computer System Design; *Microcomputers; *Physical Disabilities; *Selection

This pamphlet provides information on selection of a personal computer system for individuals with physical disabilities. It is directed toward adults or young adults who need to access such application programs as word processing, database management, and spreadsheets for higher education or vocational purposes. Following a brief description of what microcomputers can do, a comparison is presented of Macintosh and MS-DOS computers. A chart lists major input/output adapted features available for either the Macintosh or MS-DOS computers, such as voice recognition, optical head pointer, word prediction, and braille hard copy output. Peripheral equipment to be considered is also described, including printers, hard disk drives, color monitors, and memory options. In addition to consideration of the type of computer application and the adaptive hardware needed, performance level is identified as a decision-making factor. Three models each from Macintosh, IBM, and Zenith are categorized as Level 1, Level 2, and Level 3 in performance and their capabilities are described.

ED315989
Resource Guide for Persons with Hearing Impairments.
IBM, Atlanta, GA. National Support Center for Persons with Disabilities.
19 July 1989, 97p. For other guides in this series, see ED 315 988-992.
EDRS Price: MF01/PC04 plus postage.
Document Type: Directory (132)
Major Descriptors: *Assistive Devices (for Disabled); *Deafness; *Hearing Impairments; *Microcomputers; *Organizations (Groups)

The resource guide identifies products which assist hearing impaired individuals in accessing IBM (International Business Machine) Personal Computers or the IBM PS/2 family of products. An introduction provides a general overview of ways computers can help hearing impaired persons. The document then provides descriptions of about 20 adaptive aids and related products followed by more detailed descriptions of IBM PC Augmented Phone Services and the IBM Personal System/2 Speech Viewer. Product information includes the manufacturer and a description. The next section lists approximately 235 agencies and associations which provide such services as acting as an information clearing house, legislative monitoring, peer counseling, and sponsoring conferences, workshops and seminars. Agencies are listed alphabetically by state. Also listed by state are about 115 additional resources providing such services as special education and rehabilitation. An index is provided for products, support groups and vendors.

ED315990
Resource Guide for Persons with Learning Impairments.
IBM, Atlanta, GA. National Support Center for Persons with Disabilities.
19 July 1989, 117p. For other guides in this series, see ED 315 988-992.
EDRS Price: MF01/PC05 plus postage.
Document Type: Directory (132)
Major Descriptors: *Computer Assisted Instruction; *Learning Disabilities; *Mental Retardation; *Microcomputers; *Organizations (Groups); *Remedial Instruction

The resource guide identifies products which assist learning disabled and mentally retarded individuals in accessing IBM (International Business Machine) Personal Computers or the IBM Personal System/2 family of products. An introduction provides a general overview of ways computers can helplearning disabled or retarded persons. The document then provides descriptions of about 100 products arranged alphabetically within the following categories: cognitive skills, reading and writing, and educational software. Product information includes the manufacturer and a description. A separate section lists approximately 175 agencies and associations which provide such services as acting as an information clearing house, legislative monitoring, peer counseling, and sponsoring conferences, workshops and seminars. Agencies are listed alphabetically by city within each state. Also listed by state are about 120 additional resources providing such services as special education and rehabilitation. An index is provided for products, support groups and vendors.

ED315988
Resource Guide for Persons with Mobility Impairments.
IBM, Atlanta, GA. National Support Center for Persons with Disabilities.
12 July 1989, 192p. For other guides in this series, see ED 315 989-992.
EDRS Price: MF01/PC08 plus postage.
Document Type: Directory (132)
Major Descriptors: *Electromechanical Aids; *Electronic Control; *Input Output Devices; *Microcomputers; *Physical Disabilities

The resource guide identifies products which assist individuals with mobility impairments in accessing IBM (International Business Machine) Personal Computers or the IBM Personal System/2 family of products. An introduction provides a general overview of ways computers can help persons with mobility impairments. The main portion of the document consists of a listing of about 325 products arranged alphabetically within the following categories: keyboard modification, alternate input, switching devices, voice recognition, electronic environment control, alternatives to printed documentation, word processing, and the IBM PC voice activated keyboard utility. Product information includes the manufacturer and a brief description. A separate section lists approximately 250 agencies and associations which provide such services as acting as an information clearing house, legislative monitoring, peer counseling, and sponsoring conferences, workshops and seminars. Agencies are listed alphabetically by city within each state. Also listed by state are about 150 additional resources providing such services as special education and rehabilitation. An index is provided for products, support groups and vendors.

ED315992
Resource Guide for Persons with Speech or Language Impairments.
IBM, Atlanta, GA. National Support Center for Persons with Disabilities.
23 August 1989, 89p. For other guides in this series, see ED 315 988-991.
EDRS Price: MF01/PC04 plus postage.
Document Type: Directory (132)
Major Descriptors: *Assistive Devices (for Disabled); *Language Handicaps; *Microcomputers; *Organizations (Groups); *Speech Handicaps

The resource guide identifies products which assist speech or language impaired individuals in accessing IBM (International Business Machine) Personal Computers or the IBM Personal System/2 family of products. An introduction provides a general overview of ways computers can help persons with speech or language handicaps. The document then provides descriptions of about 100 products arranged alphabetically within the following categories: therapy, cognitive skills, and electronic communication. More detailed descriptions are provided of IBM PC Augmented Phone Services and the IBM Personal System/2 Speech Viewer. Product information includes the manufacturer and a description. A separate section lists approximately 150 agencies and associations which provide such services as acting as an information clearing house, legislative monitoring, peer counseling, and sponsoring conferences, workshops and seminars. Agencies are listed alphabetically by city within each state. Also listed by state are about 90 additional resources providing such services as special education, rehabilitation, and computer training. An index is provided for products, support groups and vendors.

ED315991
Resource Guide for Persons with Vision Impairments.
IBM, Atlanta, GA. National Support Center for Persons with Disabilities.
19 July 1989, 202p. For other guides in this series, see ED 315 988-992.
EDRS Price: MF01/PC09 plus postage.
Document Type: Directory (132)

BEST COPY AVAILABLE

Major Descriptors: *Assistive Devices (for Disabled); *Low Vision Aids; *Microcomputers; *Organizations (Groups); *Visual Impairments

The resource guide identifies products which assist visually impaired individuals in accessing IBM (International Business Machine) Personal Computers or the IBM Personal System/2 family of products. An introduction provides a general overview of ways computers can help persons with visual handicaps. The document then provides descriptions of about 300 products arranged alphabetically within the following categories: enlarged output; braille; audio output (screen reading, speech synthesizer, other audio output, IBM Personal System/2 Screen reader and related synthesizers); optical readers; alternatives to printed documentation; and word processing. Product information includes the manufacture name and a description. A separate section lists approximately 400 agencies and associations which provide such services as acting as an information clearing house, legislative monitoring, peer counseling, and sponsoring conferences, workshops and seminars. Agencies are listed alphabetically by city within each state. Also listed by state are about 150 additional resources providing such services as special education, rehabilitation, recordings, and computer training. An index is provided for products, support groups and vendors.

ED309611

The Comparative Effects of Computer-Assisted Instruction of Motivation and Achievement of Learning Disabled and Nonlearning Disabled Students.

McDermott, Paul A.; Stegemann, Jane Hessemer

Pennsylvania University, Philadelphia.

1987, 99p.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF01/PC04 plus postage.

Document Type: Research Report (143)

Major Descriptors: *Computer Assisted Instruction; *Instructional Effectiveness; *Learning Disabilities; *Mathematics Achievement; *Multiplication; *Student Motivation

This study investigated the processes by which variation in format for presenting multiplication problems influenced children's motivation and achievement. The three multiplication drill and practice instructional methods were: (1) computer-assisted instruction (CAI) with a reward game, (2) computer-assisted instruction without a reward game, and (3) paper-and-pencil. A sample of 69 fourth-grade students was classified into one of two groups, labelled achiever or underachiever, and the students were randomly assigned to one of the three instructional methods. Results indicated that both achievement and motivation were related to instructional method. When motivation was defined as amount of time the student participated in the study, the two CAI groups were more motivated than the paper-and-pencil students. When achievement was defined as the number of multiplication problems completed correctly, the group of students using CAI without a reward game achieved more than the group using CAI with a reward game. When achievement was measured by pre- and post-achievement test comparison, there were no significant effects. There were no significant interactions between method of instruction and type of achiever.

ED316961

Applications of Technology in the Education of Severely and Profoundly Impaired Students: Research, Training, and Dissemination. Final Report.

McGregor, Gail; And Others

Johns Hopkins University, Baltimore, MD. Department of Education.

30 December 1986, 93p. Appendix B contains poor type quality and filled in letters.

Sponsoring Agency: Department of Education, Washington, DC.

EDRS Price: MF01/PC04 plus postage.

Document Type: Project Description (141)

Major Descriptors: *Computer Assisted Instruction; *Computer Managed Instruction; *Computer Uses in Education; *Microcomputers; *Severe Disabilities; *Teacher Attitudes

The goal of this 2-year project was to examine applications of microcomputer technology in classrooms for students with severe handicaps. Staff members in 12 classrooms in the School District of Philadelphia (Pennsylvania) were taught to use Apple IIe microcomputer systems and various peripheral devices. Teachers in these classrooms found word processing software helpful in assisting home-school communication, but data management applications were not viewed as time efficient. In the area of student instruction, the computer was useful as a means for developing motor skills and learning response/reinforcement contingency relationships. The physical arrangement of the equipment and the match between student and input device emerged as important considerations in promoting successful student-computer interaction. Only a small proportion of students in project classrooms

were able to use software intended to teach basic concepts and language skills. In addition to summaries of project activities and outcomes, this report contains the following appendices: (1) a paper titled "The Use of Technology in Educational Programs for Students with Multiple Handicaps" by Gail McGregor; (2) abstracts of other papers; and (3) a manual titled "Introduction to the Apple" which discusses peripheral devices, computer applications in special education, and activities for instruction and management.

ED310591
The Special Education Software Center. Final Report.
Middleton, Teresa
SRI International, Menlo Park, CA.
December 1987, 88p.
Sponsoring Agency: Special Education Programs (ED/OSERS), Washington, DC.
EDRS Price: MF01/PC04 plus postage.
Document Type: Project Description (141)
Major Descriptors: *Computer Software; *Disabilities; *Information Centers; *Information Services; *Program Development

This report describes the 3 years of operation of the Special Education Software Center (Menlo Park, California), implemented with federal funding by SRI International, LINC Resources Inc., and the Council for Exceptional Children. The report describes activities of the Center and portrays, from the patterns of information requests received by the Center, the software information needs of the special education community. Following an introductory section, Section II provides a brief background on technology and the handicapped, and describes the federal government's role in supporting the use of technology in special education. Section III presents the approach used in setting up the Center, describing the Center's overall design, development, and electronic network support; the section also discusses Center services, including technical assistance, software information, conferences, and assistance to the Model Secondary School for the Deaf. Section IV examines the Center's success in increasing the quantity and quality of microcomputer software applicable to special education and also in increasing its accessibility. A final section outlines lessons learned and recommendations. Notes, a bibliography, and exhibits are appended to the report.

ED319181
The Impact of Computer-Supported Writing Instruction on the Writing Quality of Learning-Disabled Students. Final Report.
Morocco, Catherine Cobb; And Others
Education Development Center, Inc., Newton, Mass.
30 January 1989, 152p.
Sponsoring Agency: Special Education Programs (ED/OSERS), Washington, DC. Division of Educational Services.
EDRS Price: MF01/PC07 plus postage.
Document Type: Evaluative Report (142)
Major Descriptors: *Computer Assisted Instruction; *Instructional Effectiveness; *Learning Disabilities; *Program Evaluation; *Teaching Methods; *Writing Instruction

This report describes a federally funded project to study integration of computers into the writing instruction of classroom teachers, and evaluates the impact of a computer-supported writing program on instruction, on the writing process, and on products of normally achieving and learning-disabled (LD) students. The study compared the impact of a computer-supported versus pencil-and-paper writing process program on students' writing quality and attitudes. The study involved 62 fourth-grade students in treatment classrooms using computers, 16 of whom were LD students, and 65 students in comparison classrooms not using computers, 13 of whom were LD students. Results showed modest support for a computer-supported writing environment. The computer, in combination with an instructional approach that emphasized extensive composing, revising, and individualized help, contributed to gains in writing quality. Experimental students reported a greater enjoyment of writing at the end of the study year than they reported at the beginning.

ED316995
Telecommunications and an Interactive Approach to Literacy in Disabled Students. Final Report.
Naiman, Doris W.
New York University, N.Y. [1988], 184p.
EDRS Price: MF01/PC08 plus postage.
Document Type: Research Report (143); Test, Questionnaire (160)

Major Descriptors: *Disabilities; *Electronic Mail; *Instructional Effectiveness; *Literacy Education; *Telecommunications

The monograph reports on a model which integrates computer telecommunication technology with a social interaction approach to teach literacy skills to disabled students. The model was implemented and evaluated over a 3-year period with 91 students, 12 to 18 years of age, in 10 schools serving students who are deaf, emotionally disturbed, mentally retarded or have cerebral palsy or specific learning disabilities. The project, which focused on using the motivating power of electronic mail, had three specific research objectives: to assess changes in students' reading comprehension; to assess changes in students' competency in writing English; and to identify patterns of change in reading and writing competence through analysis of student correspondence with peers via electronic mailboxes and bulletin board. Findings indicated that: (1) participation did improve students' reading and writing abilities; (2) frequency of use was the most significant variable in student progress; (3) initial skill level was not related to program effectiveness; and (4) students who corresponded regularly with a mature writer made greater gains that students who corresponded only with peers. An analysis of results by year and by disability is provided. Appendixes provide scoring notes for the standardized reading test, the literacy aptitude questionnaire, the student and teacher evaluation questionnaires, and the training booklets for teachers. Contains 35 references.

ED315925
Beyond Drill and Practice: Expanding the Computer Mainstream.
Russell, Susan Jo; And Others
Council for Exceptional Children, Reston, VA.
1989, 130p.
Sponsoring Agency: Special Education Programs (ED/OSERS), Washington, DC.
Available from: Council for Exceptional Children, Publication Sales, 1920 Association Dr., Reston, VA 22091 ($18.00, $14.40 members; stock no. P333).
EDRS Price: MF01/PC06 plus postage.
Document Type: Non-Classroom Material (055)
Major Descriptors: *Computer Assisted Instruction; *Computer Software; *Disabilities; *Skill Development; *Teaching Methods

This book describes the practice of using learner-centered software in special education. Following an introductory chapter, Chapter 2 provides a discussion of software that goes beyond drill and practice and at the same time fits easily into the existing subject areas of reading/language arts and mathematics. Chapters 3 and 4 discuss using word processing software to teach writing and using software to develop problem-solving and critical thinking skills. Numerous illustrations of effective ways that teachers have used the software are included. In Chapter 5, the topic of using software to help students learn how to be better learners is addressed. Chapters 6 and 7 deal with the interaction between student, learning environment, and software—all of which is facilitated by the teacher. Chapter 6 focuses on the multiple roles of the teacher as introducer, technical advisor, arranger, visitor, silent partner, booster, mentor, and learner. The final section of Chapter 7 lists alphabetically all software identified in the book, with publisher, address, and computer type.

ED321464
Using Microprocessors To Develop Communication Skills in Young Severely Handicapped Children. Final Project Report, 10/87-6/89.
Schery, Teris K.; O'Connor, Lisa
15 August 1989, 21p.
EDRS Price: MF01/PC01 plus postage.
Document Type: Research Report (143)
Major Descriptors: *Communication Skills; *Computer Literacy; *Computer Uses in Education; *Microcomputers; *Severe Disabilities; *Vocabulary Development

This project trained 52 severely handicapped children (ages 3-12) on communication skills using microprocessor technology. Data analyses showed discernible effect of the additional computer training when compared to regular classroom communication training alone. Effects were strongest on a direct criterion-referenced measure of vocabulary taught. A cluster of more general language measures taken by the researchers, classroom teachers, and parents also detected significant benefits to the computer enhancement condition. Benefits of this training were also notable on teacher and parent measures of social interaction skills.

ED318198

A Software Guide for the Special Educator.

Spenciner, Loraine J., Ed.; Cohen, Libby G., Ed.

1989, 138p.

Sponsoring Agency: Maine State Department of Educational and Cultural Services, Augusta. Division of Special Education.

EDRS Price: MF01/PC06 plus postage.

Document Type: Directory (132); Book-Product Review (072)

Major Descriptors: *Computer Software Reviews; *Courseware; *Disabilities; *Special Education

This guide summarizes and evaluates 48 educational software packages for special educators working on the specific skill areas of keyboarding, language arts, math, personal/social skills, problem solving, readiness, and reading. Each review is written by a teacher and covers strengths and weaknesses of the software, suggested activities for its use, publisher data, and an evaluation summary rating the package on 18 factors. An appendix lists curriculum software packages preferred by over 350 Maine special educators, with an indication of the number of teachers using each package. Includes 12 references.

ED316223

1989/90 Innotek Software Resource Guide. A Guide for Selecting Software for Children with Special Needs.

Trieschmann, Mary, Ed.

National Lekotek Center, Evanston, IL.

1989, 129p.

Available from: National Lekotek Center, 2100 Ridge Avenue, Evanston, IL 60204 ($20.00).

EDRS Price: MF01 plus postage. PC not available from EDRS.

Document Type: Non-Classroom Material (055); Directory (132)

Major Descriptors: *Computer Assisted Instruction; *Courseware; *Disabilities

The result of a continuing study of software related to children with special needs, this guide is intended to assist in the selection of software appropriate for children with mental, physical, behavioral, sensory, and learning impairments. Suggestions for gifted children are also included. The guide is updated yearly and includes more than 190 carefully selected software programs that have been used successfully with children ranging in age from 2 through 14. Each program has been reviewed by trained teachers, therapists, and parents for learning value, child appeal, ease of use, and flexibility. Information for each software package includes subject, skills content, age level, the specific disability addressed, hardware and peripheral specifications, price, and a description of the software, including whether or not it includes graphics, animation, and sound. Separate listings of software companies, peripherals, and adaptive equipment resources are included. The guide is designed for use as a resource and is not an endorsement for any specific program or manufacturer.

ED313851

Graphics with Special Interfaces for Disabled People.

Tronconi, A.; And Others

October 1988, 11p. Paper presented at the Biennial Conference on Augmentative and Alternative Communication (5th, Anaheim, CA, October 23-26, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Conference Paper (150); Project Description (141)

Major Descriptors: *Accessibility (for Disabled); *Computer Graphics; *Computer Software; *Input Output Devices; *Physical Disabilities

The paper describes new software and special input devices to allow physically impaired children to utilize the graphic capabilities of personal computers. Special input devices for computer graphics access—the voice recognition card, the single switch, or the mouse emulator—can be used either singly or in combination by the disabled to control graphics software. The disabled who have no problem in speech production sounds can use the speech recognition system; the disabled who have phonation problems may use a single switch activated by simple push actions coupled with suitable software. Newly developed by the authors is the mouse emulator which allows control of both graphic and communication software by means of simpler movements than those required to use a standard mouse. Two push-buttons allow either selection of objects displayed on a screen or activation of a function related to the chosen object. The pointer controller allows the user to move objects around the screen. Both standard and specially developed graphic software can be used. The mouse emulator can also serve as a pointer communication aid for nonspeaking disabled individuals. A special multichannel input interface was developed by the authors to allow motor disabled persons to produce three-dimensional pictures on the screen. This interface is described in some detail.

ED310599

Service Delivery Mechanisms in Rehabilitation Technology.

Vanderheiden, Gregg C.

Wisconsin University, Madison. Trace Center.

American Journal of Occupational Therapy, v41 n11 p703-710 Nov 1987

1987, 11p. A product of the Trace Research and Development Center on Communication, Control, and Computer Access for Handicapped Individuals. Paper based on keynote address presented at the Annual Conference of the American Occupational Association (66th, Minneapolis, MN, April 1986).

Sponsoring Agency: National Institute on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.

Available from: Trace Center, University of Wisconsin-Madison, Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280 ($1.50).

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Journal Article (080); Conference Paper (150)

Major Descriptors: *Assistive Devices (for Disabled); *Delivery Systems; *Disabilities; *Microcomputers; *Rehabilitation; *Technology

This reprint of a journal article focuses on the use of computers and other personal assistive devices by disabled persons. Topics covered include: a perspective on the use of advanced technology; distinction between technological appliances which provide benefits to the individual independent of the individual's skill level, versus tools which require development of special skills to gain full benefit of their use; skills or special knowledge needed for the effective delivery of rehabilitation technology; new roles for the service delivery team; sources of training in rehabilitation technology; and issues in qualification or certification of rehabilitation technology professionals.

Disadvantaged

ED310742

An Observational Study of Social Processes in Microcomputer Classrooms.

Feldmann, Shirley C.; And Others

28 March 1989, 22p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 28, 1989).

Sponsoring Agency: Office of Libraries and Learning Technologies (ED), Washington, DC.

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Educational Sociology; *Group Dynamics; *High School Students; *Microcomputers; *Student Behavior; *Teacher Behavior

This observational study examined student and teacher verbal and nonverbal behaviors in microcomputer classrooms in a high school where most of the students are Black, Hispanic, or Asian, and almost half of them are classified as economically disadvantaged. A total of 125 students in grades 9 to 12 were observed, with 47 students in marketing, 18 in social studies, 29 in English, and 31 in stenography classes. The objectives of the study were to determine: (1) the effects on student behavior of grouping at the computer (individual or paired), student keyboard status (keyboarding, not keyboarding, taking turns), gender, type of class, gender of partner if applicable, and academic discipline; and (2) the effects on teacher behavior of student grouping at the computer (individual or paired), student gender, and academic discipline. The study provides evidence that two contextual variables—student grouping at the computer and academic discipline—seem to be related to social processes in the computer classroom. These variables produced variations in the nature and frequency of student behaviors, with students who were paired being more verbally active and showing more positive reactions to their work. There were also differing responses across disciplines, probably linked to the particular curriculum that was observed. Teachers involved in whole class activities, as compared to individual interactions, gave a higher than expected frequency of procedural information. Results of analyses of the data are displayed in 22 tables. (5 references)

ED309763

Honing in on the Target: Who among the Educationally Disadvantaged Benefits Most from What CBI?

Swan, Karen; And Others

March 1989, 23p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 25-30, 1989).

EDRS Price: MF01/PC01 plus postage.

Document Type: Research Report (143); Conference Paper (150); Statistical Material (110)

Major Descriptors: *Computer Assisted Instruction; *Educationally Disadvantaged; *Instructional Effectiveness; *Remedial Mathematics; *Remedial Reading

The research reported in this paper investigated the efficacy of the use of comprehensive computer-based instruction (CBI) for providing basic skills remediation to educationally disadvantaged student populations. Thirteen CBI programs placed in 26 elementary and secondary schools throughout the New York City school system were evaluated during the 1987-88 school year. Results reveal that CBI programs can indeed be an effective means for delivering such instruction, that they can be as effective in providing instruction in reading as they are in providing mathematics instruction to educationally disadvantaged students, and that within that population an inverse relationship exists between instructional level and achievement gains resulting from involvement with CBI. The differential effectiveness of differing programs was also suggested in the findings. Interviews with participating students and teachers indicate that four features of CBI make it particularly useful to educationally disadvantaged students— CBI is perceived by students as less threatening than traditional classroom instruction, it provides extensive drill and practice exercises, it typically provides individualized diagnostics, and CBI programs provide students with greater academic support. Results of data analyses are reported in 18 tables. (14 references)

ED310733

Comprehensive Computer-Based Instructional Programs: What Works for Educationally Disadvantaged Students?

Swan, Karen; And Others

March 1989, 47p. Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 25-30, 1989).

EDRS Price: MF01/PC02 plus postage.

Document Type: Research Report (143); Conference Paper (150)

Major Descriptors: *Basic Skills; *Computer Assisted Instruction; *Computer Managed Instruction; *Courseware; *Educationally Disadvantaged; *Instructional Effectiveness

The Computer Pilot Program of the Division of Computer Information Services of the New York City Board of Education was designed to investigate the claim that comprehensive computer-based instruction (CBI) might best be used to improve the basic skills of educationally disadvantaged students. This ongoing project is designed to identify comprehensive CBI programs and implementation factors that can combine to positively affect the academic performance, attendance, and attitudes of educationally disadvantaged students. In the 1987-88 school year, 13 such programs were placed in 26 elementary and secondary schools in New York City. The investigation consisted of site observations, interviews with staff members and students involved with the programs, statistical comparisons of students' 1989 and 1988 scores on city-wide tests of reading and mathematics achievement, and questionnaires sent to the vendors of the CBI programs. The programs were generally well received by both staff and students, and their use generally resulted in significant achievement gains; however, students in the lower grades tended to show greater gains than students in the higher grades. Almost all of the programs involved both computer management and computer delivery of instruction. All but two programs covered reading, language arts, and mathematics, and many covered other subjects as well. Most of the programs used a task-analytic, learning-by-objectives approach, and about half of them were designed specifically for remedial populations. Most ran on either IBM, Apple II, or proprietary networks. This report summarizes these findings for each of the 13 programs evaluated.

Gifted

ED315999

Challenging Gifted Elementary School Students through Computer-Based Newspaper Production.

Harris, Bruce; And Others

30 January 1987, 11p. Paper presented at the Annual Computers in Education Conference (7th, Salt Lake City, UT, January 30, 1987).

EDRS Price: MF01/PC01 plus postage.

Document Type: Project Description (141); Conference Paper (150)

Major Descriptors: *Computer Uses in Education; *Enrichment Activities; *Gifted; *Language Arts; *School Newspapers

Microcomputers were used by 24 gifted students in a Utah elementary school to produce a school newspaper. Students used word processing (Bank Street Writer) and desktop publishing software (The Newsroom). They met in small groups over a 3-week period to develop basic journalism skills such as interviewing, writing and editing articles. Articles were then typed and organized in general categories such as world events, sports, school events, and comics, and the layout was determined. Project evaluation indicated: students learned to use the word processor in less than an hour; and the desktop publishing software encouraged students to use creativity and organizational skills. Other results were that fourth graders were more motivated and involved than sixth graders and most of the children demonstrated a sense of ownership and intrinsic motivation. The project also increased teachers' interest in the computer lab and received the support of both administrators and parents. Five references.

ED321488
Personal Computers Help Gifted Students Work Smart. ERIC Digest #E483.
Jones, Geoffrey
Council for Exceptional Children, Reston, VA.; ERIC Clearinghouse on Handicapped and Gifted Children, Reston, VA.
1990. 3p.
Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC.
EDRS Price: MF01/PC01 plus postage.
Document Type: ERIC Product (071); Non-Classroom Material (055)
Major Descriptors: *Cognitive Development; *Computer Uses in Education; *Educational Needs; *Gifted; *Questioning Techniques

This digest considers the role of personal computers in the education of gifted students. There is evidence that students are working "smarter," whether they are learning and using more information, understanding key concepts and relationships better, or developing higher level thinking skills. Research findings concerning the specific instructional needs of gifted and talented students are listed. The computer is seen as an idea engine for such students. Although educational uses in computer-assisted instruction, student-developed computer simulations, and programming are recognized, the computer's greatest power is seen to lie in the quality of questions students can ask and attempt to answer. The impact of a nationwide program to encourage students to formulate good questions for a supercomputer is reported. Recommendations include: encouraging experimentation and individual learning styles; structuring experience to help students develop strengths and overcome weaknesses; and promoting interpersonal relationships through computers. Includes eight references.

Preschool Education

ED321858
Computers in Head Start Classrooms: Recommendations from the Head Start/IBM Partnership Project.
MOBIUS Corporation, Alexandria, VA.
March 1990, 94p.
Available from: MOBIUS Corporation, 405 North Henry Street, Alexandria, VA 22314 (single copy free; multiple copies, $4.00 each, postpaid).
EDRS Price: MF01/PC04 plus postage.
Document Type: Teaching Guide (052); Test, Questionnaire (160)
Major Descriptors: *Classroom Techniques; *Compensatory Education; *Computer Uses in Education; *Learning Centers (Classroom); *Microcomputers; *Parent Participation

This report offers a series of recommendations for the creation of a successful computer learning center in the Head Start classroom. Based on a 6-month study involving 44 classrooms in 11 programs in 7 states, recommendations focus more on children, teachers, and classroom activities than on computers and software. The report recommends many practical teaching activities for use with children, and many training and support strategies for teachers. A summary of the recommendations is followed by information on the Head Start/IBM Partnership Project (a joint effort of the Head Start Bureau and the Educational Systems Division of International Business Machines Corporation); a rationale for computers in the classroom; organization of the computer learning center; the process of introducing children to computers; the process of training and supporting teachers; the process of involving parents and volunteers; and characteristics of successful Head Start program implementation. Appendices include a list of participating organizations, descriptions of hardware and software, technology readi-

ness self-assessment questionnaires for individual staff members, and diagrams of computer placement and equipment organization.

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